



AMERICAN FOUNDATION
FOR THE BLIND INC.

401511
5
copy 1

The Sight-Saving Review

Volume XII

Number 1

March, 1942

Table of Contents

	PAGE
THE EYE PROBLEM IN THE NATIONAL DEFENSE SITUATION, Harry S. Gradle, M.D.	3
EYE PROTECTION IN THE DEFENSE INDUSTRIES, Joseph A. Haller.	11
LEGIBILITY IN COMIC BOOKS, Matthew Luckiesh and Frank K. Moss.	19
THE SPECIALIZATION OF CONSERVATION OF VISION IN INSTI- TUTIONAL NURSING, Cora L. Shaw, R.N.	25
REPORT ON THE GLAUCOMA CAMPAIGN, Mark J. Schoen- berg, M.D.	32
GLAUCOMA PROGRAM AT THE MASSACHUSETTS EYE AND EAR INFIRMARY, Garrett L. Sullivan, M.D.	36
THE RESTORATION OF SIGHT AND PREVENTION OF BLINDNESS IN KANSAS, Harry E. Hayes	44
SIGHT RESTORATION AND PATIENTS' REACTIONS, Edith E. Gutzeit.	62
NOTE AND COMMENT:	
Summer Courses for Training in Sight-Saving Class Work	71
Society's Program for the National Conference of Social Work.	71
Fourth of July Fireworks Injuries.	72
Vision in our National War Effort.	73

	PAGE
Vitamin A and Color Blindness	74
Eyes Supplied by Dead for Living Blind	74
Control of Epidemic Virus Conjunctivitis	74
BOOK REVIEW, by Sally Lucas Jean	76
Briefer Comments	78
CONTRIBUTORS TO THIS ISSUE	80

The Eye Problem in the National Defense Situation*

Harry S. Gradle, M.D.

DISCUSSES the eyes in the selective service examination; the eyes of the armed forces; and the rôle of the ophthalmologist in the present emergency.

A NATIONAL emergency, such as we are now entering upon, presents untold problems, both immediate and future. Some are beyond the range of solution, but the majority can be solved by co-operation, work, and patience. The ophthalmological problems that are raised by the demands of these times are interesting, somewhat embarrassing, but not beyond the possibilities of our present knowledge and capacity.

These can well be divided into three main aspects:

(1) The rôle of the eyes in the application of the Selective Service Act; (2) the rôle of the eyes in the armed forces of the United States; and (3) the rôle of the ophthalmologist in the present emergency.

The Eyes in the Selective Service Examination

Enormous consternation was created when the first analysis of the results of the physical examination of selectees began to appear. These dealt with men from 21 to 35 years of age, and the public confidently expected the announcement that here was the cream of the youth of the country, bursting with health and physically fit for anything! But when the examining boards turned over their reports to the statisticians, who came out bluntly with the fact that 43 per cent of the men examined were unfit for full military duty,

* Presented at the Biennial Conference of the National Society for the Prevention of Blindness, December 5, 1941.

a gasp went up all over the country. Although that gasp was heartfelt and deep, still, as is the custom all over the world, the public soon turned from that shocking fact to the routine business of making a living and enjoying life—all, that is, except a few who were aware, either officially or privately, of the dread implication that these figures involved. But before we consider the activities of these few, it would be well to analyze the eye aspect of those figures.

Approximately 43 per cent of the first million men examined were rejected for full military service because of physical defects: 20 per cent were put into Class IV-F, and 12 per cent into Class I-B, by the local examining boards; and an additional 11 per cent were rejected by the Army Induction Boards. Roughly, 5 per cent of the total number, or 50,000, were found deficient as far as eyes were concerned. Four-fifths of that number were rejected because of errors of refraction and one-fifth because of disqualifying eye disease. That percentage of ocular deficiencies is only slightly greater than it was during the first World War, when the figure, based upon the examination of more than four million men, was 4 per cent—and this despite the more rigid standards of today. In 1917, it was merely necessary that one eye could be corrected to 20/40, whereas now the vision in either eye must be better than 20/100, correctible in each eye to 20/40. Statistics for comparison of 1917 and 1941 on the basis of the same standards are not available.

Approximately one-fourth (26.13 per cent) of the men rejected were found to have ocular defects. That figure may again be divided into those whose eye defects were of sufficient gravity to preclude any military service whatsoever—8.99 per cent (Class IV-F) and those who could qualify for limited service—17.14 per cent (Class I-B). To reduce that to concrete figures—of the first million men reporting to the local Draft Board, 430,000 were rejected for full military service because of physical defects, 50,000 of which were ocular. Of these, approximately 17,000 had serious eye conditions that rendered them unfit for any military duty, while about 34,000 had ocular difficulties that would permit of only limited military service.

It must be remembered that these figures deal with the entire

age group of 21 to 35 years. Much lower rejection statistics appear for the 21 to 28 year old group, but these are not yet available in sufficient quantities to justify comparisons.

Reverting for a moment to the concern aroused by the first published analyses, immediate action was inaugurated by the President, who appointed a Commission on Rehabilitation, under the chairmanship of Dr. George Baehr of New York. It was the duty of this Commission to investigate the causes for rejection on purely physical grounds and to propose a plan for the physical rehabilitation of the rejectees in so far as possible. It was estimated that approximately 50 per cent of the rejectees could be so rehabilitated as to be acceptable for full military service. A plan was submitted through the Federal Security Agency and the duties of rehabilitation have been but recently put into the hands of the Selective Service Agency by the President.

Where does the National Society for the Prevention of Blindness fit into the picture so far? It doesn't yet; but it can, by preventing a repetition of such figures in the future. Our examination of 1,340,000 children in the schools of Illinois revealed deficient vision of a greater or lesser extent in 17.5 per cent, of which 1.82 per cent fit into the class of vision of less than 20/70—which is roughly comparable to draft requirements. After an intensive program of correction had been under way, re-examination five years later showed that the percentage of defects had fallen to 10.8 per cent. In other words, correction of defective vision in young children by all means possible results in a very appreciable decrease in visual deficiency in later life. Of 146,323 high school children examined over a two-year period, 13.1 per cent showed visual defects. Approximately 10 per cent, that is, 1.34 per cent of the total, fell into the group with vision less than 20/70. This leads to the conclusion that intensive work by the National Society for the Prevention of Blindness in fostering the visual examination of school children and instituting a subsequent corrective program will lead to a marked decrease in rejection for visual defects of these self-same children when they arrive at the age for selective service.

This is only the military point of view, which unfortunately will probably pertain for some decades to come. But the broader aspect deals with the problem of preventing the visual defects that in-

crease with age to the point that the individual enters the great army of unemployables that has to be supported by the state. The cost of rehabilitation, great as it may seem, will be returned manyfold in decades to come by the prevention of the physical defects that eventually cause the individual to become a public charge. And not the least among these are the visual deficiencies under discussion.

The Eyes of the Armed Forces

Certain essential visual requirements are demanded for admission to the Armed Services, and these vary somewhat in peace time from the present military emergency. In the past, the ophthalmic requirements for entrance into the military and naval academies have been very strict, but under the urgent need for trained officers and the consequent shortening of the term of study, the ocular specifications have been somewhat relaxed. Most interesting is the recently proven fact that the intensive study in the Academies has developed a low myopia in a fair proportion of the students. A refractive error necessitating the use of glasses is no serious handicap to an army officer, even on active field duty; but a deck officer in the navy cannot use correcting glasses on active sea duty because of spray, etc. The same visual requirements, slightly relaxed, apply to reserve officers of the forces. However in the medical department, greater latitude is permitted for obvious reasons.

The enlisted personnel of the army and navy do not have the need for the intensive visual tasks required of the commissioned personnel, and consequently the visual requirements for admission to the ranks are on a lower standard. There is a rigid adherence to these standards to date, but as the reserve pool of manpower eligible for active duty decreases, it is sure that limited service will be introduced which will release able-bodied men from non-combatant positions. There is no reason why a man with only one eye cannot hold down a desk job in the army just as efficiently as he does in civil life. But before that time comes, there will have to be a change in army and navy regulations, as well as in sentiment.

The visual requirements for the commissioned personnel of the air forces are justly the most rigid of all services. Up to a few

years ago emphasis was laid upon the ears and the vestibular apparatus of a pilot, but now it is recognized that those are of minor importance and that the eyes play the major rôle. In these days of high speed, great altitude, and fast reversals of bodily position, it is of vital import that the ocular functions of the flyer be at maximum efficiency. Deviations from the normal in refraction, in muscle balance, in fusion, and in depth perception may mean the difference between life and death to the pilot and the loss of a precious plane. No matter whether the flyer falls into the fighting, the bombing, the observation, or the teaching group, his whole visual apparatus must be of the best and must be maintained. This is not the place to list the "dry-as-dust" visual requirements of all of the armed services, but they may be found in the newly published *Manual of Ophthalmology*, produced under the direction of the National Research Council, or in the last edition of May's valuable *Manual of Diseases of the Eye*.

Early in the emergency the authorities very wisely started to organize the medical forces of the country to cope with eventual situations. The work was placed in the hands of two main committees: a co-ordinating group formed by the Surgeons General of the Army, Navy, and the U. S. Public Health Service, the Chairman of the National Research Council, and Dr. I. Abell, representing the American Medical Association. The other committee was the National Research Council, who established subcommittees to deal with individualized and specialized problems. The function and work of the two committees are quite divergent, but close liaison is maintained and greater efficiency is obtained.

The Rôle of the Ophthalmologist in the Present Emergency

In an emergency such as the present, there are four main rôles for the ophthalmological profession: (1) duty with the armed forces; (2) care of the civilian population; (3) teaching of undergraduate and graduate students; and (4) examination of selective service men.

The first duty of the sub-committee on ophthalmology of the National Research Council was to determine whether or not there was a sufficient number of trained men to fulfill these requirements and, if not, to provide adequate training courses to meet the

deficiency. Accurate statistics were lacking, but in round numbers it was found that about 6,000 physicians had special knowledge of the subject. Approximately 2,000 are men in general practice who do refractions also. Another 2,000 have had more or less adequate training and usually do ear, nose and throat work, combined with eye work. The remaining 2,000 have been certified by the American Board of Ophthalmology.

The armed forces require 7,500 physicians per 1,000,000 men. Approximately 250 of the medical personnel should be ophthalmologists, which indicates a necessity today of 500 ophthalmologists on active duty. In the advent of active hostilities, with resultant casualties, the number would have to be increased somewhat. It is extremely unlikely that the armed forces will exceed 4,000,000, which would mean the requirement of 1,200 to 1,300 ophthalmologists. So the number to fulfill the necessities of (2), (3), and (4) enumerated above would be only 20 per cent less than the existing number of civilian physicians practicing ophthalmology. Consequently, it was not deemed necessary to institute special courses for rapid training and thus lower the professional standards of the specialty.

The duties of the ophthalmologists with the armed forces are varied, but do not deviate materially from civilian practice. Geriatrics plays no rôle, and the surgical procedures are mainly those depending upon trauma and not disease. Visual examinations and refractions occupy most of the attention until battle casualties appear. In such cases, first aid has already been rendered and reparative measures are in order. However, the number of ocular injuries is comparatively small in the total roll of casualties.

The work required in caring for civilian population, teaching undergraduate and graduate students, and examining of selective service men will have to be performed by the 80 per cent of ophthalmologists not called to duty with the armed forces. Inasmuch as the services utilize only men from 21 to possibly 30 years, the total amount of civilian work as compared to peace time will not decrease materially, for the men of that age comprise only a very small percentage of routine practice. But to the usual civilian work must be added that entailed by possible non-military bombing, should we be so unfortunate as to undergo the terrific aerial

punishment that has been inflicted upon England. Our civilian physicians must be prepared to undertake at least the first-aid treatment of severe ocular injuries. To that end, there has been prepared, under the direction of the National Research Council, the *Manual on Ophthalmology* for the general physician who has not ophthalmic advice readily available. Specific instructions, particularly for the management of wounds and gas injuries, utilizing only facilities available to all medical men, are set forth in abbreviated form. It is hoped to place this book in the hands of all medical officers on duty with troops as well as in the hands of civilians in general practice. All this does not mean that the civilian eye physicians of the United States are going to have to do 20 per cent more work, for, as the country enters active hostilities and the war costs mount, much of the present non-essential ophthalmologic work will be postponed or entirely eliminated.

It is believed that the same wise policy as in the first World War will be adopted, of not permitting the teachers to enter active duty. This country will continue regardless of the outcome of the war, and physicians and ophthalmologists will still be required. So the schools for undergraduate as well as graduate teaching must be maintained and the men trained as teachers must continue. Russia made the sad mistake of trying to make doctors by a short cut, but realized the error in time before the medical resources of the country were depleted. Germany, by necessity, is falling into the same course, but because of the drain of her manpower cannot do otherwise. *Germania delenda est*, and to accomplish that, our professional personnel and facilities must be expended wisely and not to the point of depletion.

Ophthalmological examination of the selective service men is in the nature of a consultation, and hence requires a comparatively small amount of ophthalmological time. This is and will be done by civilian oculists as an adjunct to their clinic and private practice and represents their voluntary contribution toward the preparation of the armed forces for the defense of the nation.

This rather abbreviated summary of the rôle of ophthalmology in the present national emergency must, of necessity, skip many points that are of personal rather than collective interest. Undoubtedly changes in policy will take place as situations unfold and

the activities of today will be history by tomorrow. But come what may, I believe that the ophthalmological profession is capable of coping with the problems that are and that will be, and we shall continue to be in the vanguard in rendering service to the government, to the armed forces, and, above all, to the people of these United States.

Eye Protection in the Defense Industries*

Joseph A. Haller

THIS article points out the three E's of accident prevention work—engineering, education, and enforcement—emphasizing especially the latter two in the prevention of eye accidents in industry.

ON THE subject of eye protection much has been written, much has been said, much is known; and if only a small percentage of this knowledge would be put into practice by the defense industries, a large number of eye injuries would be prevented—resulting in a large increase in the production of essential materials. I should like to repeat this again to emphasize the fact that if information, available through organizations such as the National Society for the Prevention of Blindness and similar local or state organizations, would be utilized, would be adopted, would be put into use by industry, 90 per cent of the eye injuries in industry could be prevented—yes, even 98 per cent of the eye injuries could be prevented; and at the same time many other types of injuries would also be prevented. Please note that I say injuries, and not accidents. An accident is the term generally used today to refer to an injury which is the result of an accident. Yet many of them are not the result of an accident—in the true sense, many of them are bordering on the criminal. An accident is something unforeseen, unexpected. We know if a person repeatedly uses an abrasive wheel without goggles, or chips steel without goggles, that person will sooner or later receive an eye injury (more likely sooner). The same logic tells us that an unguarded pit is a hazard no matter how careful the employee may be. (More about this pit later.)

I should like first very briefly to review safety or accident pre-

* Presented at the Biennial Conference of the National Society for the Prevention of Blindness, New York City, December 5, 1941.

vention work. It was not until the turn of the century, 1910-1914, at which time the various states enacted compensation laws, that management began to realize it was good business to prevent accidents. True, management has always considered it the human thing to do. Employers did not then and do not now want to see any of their employees needlessly injured, but until the passage of the compensation laws they did not give the subject of preventing accidents serious consideration. It was not thought to be a part of their job. They did not have the incentive. Under the old laws, if negligence on the part of the injured employee or fellow employee contributed in any way to the accident, the employer was not legally responsible; consequently the employer easily developed the attitude that the accident was due to carelessness. This resulted in the error of not having a thorough investigation made to determine the real cause of the accident. Unfortunately, this is still true today in many places of employment.

Frequently the employer is too quick or reaches the conclusion too easily that an accident is due to carelessness. I realize that it may be difficult or impractical at all times to erect guards or barricades around a temporary, open pit or hole in the floor, but when the pit is left unguarded in a dark or dimly lighted passageway for the nearsighted employee to fall into, then I say it is criminal, and the term "accident" is misleading. Yet I have heard employers say the injured man was careless and did not look where he was going. I am glad to say, however, this is not the attitude of all employers.

Much has been written by representatives of some of the larger, more progressive industrial concerns showing how the number of accidents in their plant have been reduced, and how eye injuries in particular have almost been eliminated. It can be done, but first management must have the right attitude. It must have the desire and the will to eliminate accidents. It must do its part in a visible manner. It must make the physical plant safe. The employees will then gladly co-operate. As stated above, the information as to how needless eye injuries can be eliminated is available through such organizations as this. Concerns which have successfully reduced or eliminated eye accidents in their plant are ready and willing to share their knowledge.

In 1919, when I first became an employee of the safety department of a large steel plant, almost every employee who liked to consider himself a "hard-boiled" steel worker was afraid he would be considered a "sissy" if caught wearing goggles, no matter how hazardous the job might be. It was no easy task to overcome this attitude, but through the years, I am glad to say, it has been almost accomplished. While no longer in the employ of this plant, I understand employees all have their individual pair of goggles, and would not think of performing a hazardous job without wearing them. Needless to say, this plant has considerably reduced their eye injuries.

A few years ago we heard much about the three E's of accident prevention work—engineering, education, and enforcement. They are just as essential today. The first and most important of these is engineering. Under this would be the proper design and construction of the plant for safe working conditions; a continuous study of plant layout and processes; and very often the substitution of non-toxic materials for poisonous materials.

Before discussing the prevention of eye injuries, it might be well to consider briefly these injuries. Statistics concerning injuries and eye injuries in particular are based on reports, which, at best, are brief and often inaccurate in necessary information. These reports frequently do not contain the extent of disability, nor the true cause of the accident. Reports covering traumatic injuries are probably more accurate than are reports covering injuries or diseases due to poisonous substances, etc. The latter are more insidious and less spectacular in their action, but just as disastrous. Also I believe a much larger percentage of the former type of eye injuries is covered by reports to the State Compensation Commissions. For this reason alone I think our statistics are on the conservative side. The late Louis Resnick, in his recent book, *Eye Hazards in Industry* (a book which I am delighted on this occasion to commend to you for your consideration and study), estimates the actual cost to employers of industrial eye injuries to be \$110,000,000 annually. The cost in money (to say nothing of misery and after-effects) to the employees is almost as great.

What are the causes of eye injuries, conservatively estimated to number 300,000 annually, which cost such a staggering sum of

money and untold misery, spoil material, reduce operating efficiency, and cause a loss of manpower so necessary for the production of essential materials? Without the intention of answering the question as to the cause, I should like to recite an analysis, by the National Society for the Prevention of Blindness, of how eyes are injured: Flying bodies, 80 per cent; tools or machinery, 8 per cent; splashing liquids, 7 per cent; explosives, 2.5 per cent; falls, 2 per cent; and infections, 0.5 per cent. These figures would tend to indicate that toxic materials or substances either are not a big hazard or that reports covering such injuries are not filed with State Compensation Boards. As previously stated, I believe the latter to be the case.

As previously stated, approximately 80 per cent of the traumatic eye injuries are caused by flying particles. If the hazards can not be eliminated, the best protection from flying particles as well as dust, chemical fumes, splashing metals, and injurious radiation is the individual use of the proper type of goggles. By proper type, reference, of course, is made to both the lenses and the frame. Goggles should be properly fitted to the workman, and always supplied individually—never hung on a machine for common use. Facilities should be provided for frequent sterilization. Goggles for general or common use should be outlawed, the same as the old roller towel and common drinking cup. I shall not attempt to list the occupations where men are exposed to the hazards of flying particles because most all employees in industrial concerns today are exposed to this hazard, some more than others. I should not say anyone in an industrial plant is not exposed to the hazards of flying objects. With reference to the proper type of goggles for protection against a heavy blow, both the lenses and the frame must be strong enough to resist shock, and the lenses should not shatter under a blow. On the other hand, where the particles are in the nature of a dust, strength is not important. For protection against fumes and acids, a different type of goggles should be used. For protection against injurious radiant energy, such as ultraviolet and infra-red lights, encountered in acetylene burning and welding and in electric welding, goggles should be equipped with colored lenses of the proper shade to filter or absorb the injurious rays.

Proper protection to the eyes of employees who must wear cor-

rective or prescription glasses can be provided in a number of different ways. I believe the best way is to supply goggles equipped with corrective lenses protected by a cover lens; or by supplying goggles which can be worn over the corrective glasses.

The *American Standard Safety Code for the Protection of Heads, Eyes, and Respiratory Organs* is a handbook of the National Bureau of Standards describing the proper types of goggles, face masks, helmets, and hoods, for different hazards, as well as the specifications for tests which must be met to insure that these protectors will adequately fulfill their purpose. Detailed information on the subject of the use of goggles may also be obtained from the National Society for the Prevention of Blindness and the National Safety Council.

Only a brief sketch has been given on the protection of eyes from traumatic injury, as I desire also to speak briefly on another phase of my subject, namely, conservation of eyesight.

Conservation of eyesight is often overlooked entirely by management. Plants are constructed and buildings erected with only minor attention to seeing or lighting conditions. I know of buildings erected years ago with glass windows for admitting natural light to supplement artificial light, but the windows have never been cleaned. Lighting systems in the past have been installed which never did give sufficient illumination. Yet, in addition, management frequently permits such a system to function at an even greater reduction of efficiency because of accumulation of dust and dirt. It has been estimated that 15 to 25 per cent of all industrial accidents are due to poor lighting. It is rather difficult to arrive at a true estimate because it is difficult to determine the true cause of an accident from reports filed with the state accident commissions. Many accidents which are assigned to other causes are frequently due to poor lighting. If in addition to the accidents due to poor lighting those accidents due to defective eyesight are included, then I believe 25 per cent would be a very conservative estimate. Good lighting not only decreases the hazards of accidents and increases production, but also conserves the health and eyesight of employees.

In our national crisis today it is more essential than ever before to conserve every ounce of manpower. The National Society for

the Prevention of Blindness has a pamphlet by Dr. Ellice M. Alger, entitled, "Sight Begins At Forty." Dr. Alger tells us the discouraging thing of this period of life is the gradual failure of the eyes; that age brings its own eye problems, quite different from those of youth; that the eyes tire sooner than they did; and that vision is not so automatically clear. A child has the keenest of distance vision and at the same time can read the finest print held close to the eye. He can do this because he has a lens in his eye as clear as a crystal and as elastic as a rubber ball, so that it adjusts itself without effort. As he grows older the lens may remain transparent but it becomes more and more inelastic. This inability of the aged eyes to focus is called presbyopia, or "old sight." There are other diseases of the eyes which tend to develop as people get older. These diseases of the eyes of the older workers make their "seeing time" and "reacting time" both slower. This decreases efficiency and increases accidents.

In our defense program today, with a dearth of skilled workers, the aging worker and the men who have not been working for a number of years have all been called back into industry. This makes it of paramount importance that adequate illumination should be provided. It is equally important that every worker needing corrective glasses should have them. It goes without saying that an employee cannot do his work efficiently unless he can see clearly without strain what he is doing. No matter how skilled the mechanic may be or of what quality the tools, if he is 50 per cent blindfolded due to uncorrected defective vision, an all-out efficient job cannot be done.

From the information given in *Eye Hazards in Industry*, I believe it would be conservative to say at least 50 per cent of all workers in industry over 40 years of age have subnormal vision, a great deal of which could be corrected by the use of proper glasses. One employer reports that after supplying 20 per cent of his employees with corrective glasses and installing an improved lighting system, quantity output was increased 19.5 per cent and the quality was improved 16.2 per cent. This is only one of many similar reports of increased operating efficiency due to increased lighting and the use of corrective glasses by employees with defective vision. We have no way of knowing just how many accidents were prevented

at the same time, but we do know that inability to see quickly, due to poor lighting and defective vision, has caused many accidents. There may be some question as to the percentage of workers with defective vision which might be corrected, but there can be no question as to whether defective vision reduces efficiency and increases accidents. In my opinion every employer owes it to his business to discover every case of defective vision among his employees and to assist in having such defects corrected whenever correction by glasses or otherwise is possible. Correction of refractive errors, treatment of diseases and operations where necessary would require the expenditure of money, but such an expenditure must be regarded as an investment to insure the health and efficiency of the workers. It is possible that some equitable arrangement could be made whereby the employer and employee would share this expense.

The more study given to accidents, and eye injuries in particular, the more puzzling it seems to be as to why more precautions have not been taken for the prevention of such injuries. The only conclusion which can be reached is that employers do not realize the hazards or the cost of accidents.

In summarizing I should like to emphasize the following:

1. It is possible to prevent 98 per cent of the estimated number of 300,000 eye injuries which cost employers about \$110,000,000 annually.

2. The use of the proper type of face shield or goggles will prevent most of the traumatic injuries to the eyes, due to flying solids or liquids and radiant energy. The use of goggles is practicable and feasible.

3. At least 25 per cent of all accidents are due to bad lighting or a combination of poor lighting and subnormal vision. Therefore, adequate lighting and prescription glasses will not only prevent eye injuries, but also many accidents resulting in all types of injuries. Adequate lighting and prescription glasses, without question, will increase operating efficiency. At the same time, the older worker will be able to continue effectively at tasks vitally needed in our defense program.

The most important thing about living is life. The greatest tragedy is the loss of eyesight due to avoidable, accidental injury.

Bibliography

- Alger, Ellice M., M.D. "Sight Begins at Forty." *Sight-Saving Review*. Vol. 8, March, 1938.
- Bonsib, R. S. "Occupational Eye Hazards Other Than from Foreign Bodies and Traumatic Injury." New York: Standard Oil Company, 1941.
- Duke-Elder, W. Stewart. *Text-book of Ophthalmology*. Vol. 2. St. Louis: C. V. Mosby Co., 1938.
- Guilbert, Harry. "Industrial Eye Protection Program." *Sight-Saving Review*. Vol. 9, June, 1939.
- Kuhn, Hedwig S., M.D. "A New Concept of Visual Performance in Industry." *Sight-Saving Review*. Vol. 10, December, 1940.
- National Safety Council. "Goggles." Chicago: National Safety Council, 1940. Safe Practices Pamphlet number 14.
- National Society for the Prevention of Blindness. "Vision and Eye Protection: A Symposium." *Sight-Saving Review*. Vol. 9, June, 1939.
- Resnick, Louis. *Eye Hazards in Industry*. New York: Columbia University Press, 1941.
- United States Department of Commerce, Bureau of Standards. *American Standard Safety Code for the Protection of Heads, Eyes, and Respiratory Organs*. Washington, D. C.: Government Printing Office, 1938. National Bureau of Standards Handbook H24.
- United States Department of Labor, Division of Labor Standards. *Protecting Eyes in Industry*. Washington, D. C.: Government Printing Office, 1940. Bulletin number 37.

Legibility in Comic Books

Matthew Luckiesh and Frank K. Moss

CONSIDERING the subject of comic books merely from the point of view of visibility, the authors conclude that "unless comic books can be greatly improved from the viewpoint of visibility and readability, they should not survive."

MANY persons interested in conserving the eyesight of children have expressed concern over the severity of the visual tasks in so-called comic books. The lettering is commonly poor and of small size. The printing and paper are generally of poor quality. In addition to these undesirable characteristics, the lettering often possesses a colored background which reduces the contrast and, therefore, further reduces the visibility of the lettering. In many of these books small body-type is used to print paragraphs and even full pages.

All this is contrary to the progress which has been made in the use of larger type and better printing in books, particularly in school books. All the arguments which have been properly directed at poor typography in school books are applicable to the avalanche of comic books which has descended upon the children of today. It is obvious that some publishers of comic books are conscious of the commonly low quality of lettering, paper, and printing which combine to produce severe visual tasks. As a consequence, in a small percentage of the comic books the lettering is larger and better done and the paper is fairly white, possessing a higher reflection-factor than the poor newsprint usually used.

Two groups of specimens, designated as *Average* and *Superior*, were subjected to detailed study and measurements. Each group consisted of 24 specimens, carefully selected to be truly representative.

The *Average* group was selected from a large number of run-of-

the-mill comic books comprising the common "library" or "hoarding" of typical children. Some of these specimens represented approximately the largest and best lettering in these books. However, most of the specimens in this group were selected to represent the more severe visual tasks, although by no means were the selections predominantly the obviously worst ones.

The *Superior* group was selected from three comic books whose publisher had given particular attention to increasing the quality of lettering, paper, and printing. Their superiority over the *Average* group is obvious; however, actual measurements reveal the limitations of mere introspective appraisals.

The Luckiesh-Moss Visibility Meter is readily applicable to the measurement of the visibility of the lettering and other reading matter in comic books. Furthermore, the versatility of this device and technique is also illustrated by the ease with which these fundamental measurements can be translated into equivalent type-size and into the level of illumination necessary to make each individual specimen have the same visibility as a given standard. The meaning of the actual visibility measurements is adequately discussed elsewhere. Here it is sufficient to state that the unit and scale of visibility are clearly definable in terms of the size, in minutes visual angle, of a standard parallel-bar test-object which is barely visible under the same conditions as the actual visual task, such as the lettering. For those who are not interested in the fundamental basis of the visibility measurements, the latter are translated into other terms which are more readily visualized and demonstrated.

For this purpose a standard specimen of printed matter is used in all the comparisons. This is 12-point Bodoni Book type, well printed with non-glossy ink, on non-glossy white paper of excellent grade. This standard of comparison was illuminated by 20 foot-candles. Certainly this visual task is a conservative one both in type-size and in level of illumination, especially for children.

In making the measurements of visibility all specimens of lettering, including the standard printed matter, were illuminated diffusely by 20 foot-candles. Perhaps the measurements are more readily comprehended by referring to the average results obtained for the two groups of specimens. These are presented in Table I.

TABLE I.—Averages of 24 specimens from an *Average* group of comic books and of 24 specimens from a small *Superior* group compared with the standard 12-point Bodoni type

<i>Averages</i>	<i>Average Group</i>	<i>Superior Group</i>	<i>Standard 12-Point Bodoni Type</i>
Actual visibility	3.2	6.7	9.0
Per cent visibility	36.0	74.0	100.0
Equivalent type-size	5.6	9.8	12.0
Foot-candles for equal visibility .	150.0	30.0	20.0

The average visibility of the *Average* group was 3.2. This means that the average visibility of the 24 specimens of the *Average* group is the same as that of our standard test-object when it was only 3.2 times larger than the smallest which is recognizable. The smallest standard test-object which is barely recognizable by persons possessing normal vision, under the conditions of calibration of the Luckiesh-Moss visibility meter is about 1.0. Actually this means a visual size of one-minute visual angle, although the reader need not bother about the definition of our unit of visibility any more than he bothers about defining a quart, or a pound.

Referring to Table I, it is seen that the average visibility of the *Superior* group is 6.7 compared with 3.2 for the *Average* group. Obviously this means that the average visibility of the former is equivalent to that of an object (actually our standard) twice the size of that which would represent the average visibility of the *Average* group. It will be noted that the visibility of the standard 12-point Bodoni Book type, under the same conditions as the specimens from the comic books, is 9.0. Thus one may visualize the results by assuming any object, such as the capital letter *E*. The actual visibilities of the *Average* group, of the *Superior* group, and of the standard of comparison (12-point Bodoni Book type) are equivalent to the letter *E* of three different relative sizes of about 1, 2, and 3, respectively.

The second item in Table I may help further in visualizing the actual visibilities. These have been reduced to per cent visibility. It is seen that the average visibility of the *Average* group is 36 per cent of that of the standard of comparison and that of the *Superior* group is 74 per cent of the visibility of the standard.

The visibility of a specimen of lettering, of printing, or of any object or task can be translated into other factors. For example, equivalent type-size is readily visualizable by any one familiar with type-sizes. The standard of comparison is 12-point Bodoni Book type, well printed with non-glossy black ink, on non-glossy white paper of excellent quality. The average visibility of the *Average* group is equivalent to the visibility of 5.6-point type (Bodoni Book) when ink, paper, printing, and illumination are the same as those of the standard. The higher average visibility of the *Superior* group is revealed by its equivalent type-size of 9.8 points. These values are presented in Table I.

Another way of visualizing the differences in visibility is in terms of the level of illumination (foot-candles) necessary to produce the same visibility. The visibility of the standard 12-point Bodoni Book type when illuminated by 20 foot-candles is attainable for the average of the *Superior* and *Average* groups of specimens when they are illuminated by 30 and 150 foot-candles, respectively.

Thus it is obvious from measurements that the *Average* specimens are in general far more severe visual tasks than the *Superior* specimens. Although the *Superior* group represents a great improvement over the *Average* group, even the former, in general, falls short of suitable printed material for children. The average size of the type used in newspapers for body-text is 7 point. This is small type for children for whom textbooks and other books are commonly printed with 12-point type, and even larger type. Still, the average equivalent type-size for the *Average* group of specimens is less than 6 point. Furthermore, all these measurements are referred to a basic illumination of 20 foot-candles for the 12-point type used as a standard of comparison. This is a currently recommended level of illumination for schools and may be considered conservative according to our modern knowledge of seeing.

In Table II are presented the data pertaining to each of the 24 specimens in the *Average* group which were selected from run-of-the-mill comic books. Each specimen is briefly described. The reason for the low average in Table II is obvious from examination of the data for the individual specimens. The relative visibilities in terms of the standard 12-point Bodoni type are generally low. All but three of the 24 specimens have visibilities less than 50

TABLE II.—Data pertaining to each of 24 specimens (*Average* group) selected from a large number of comic books. Comparison is made with 12-point Bodoni Book type, well printed with black ink, on non-glossy white paper of good quality.

	Relative Visibility		Equiv- alent Type-Size	Foot- candles for Equal Visibility
	Actual	Per Cent		
Standard 12-point Bodoni	9.0	100	12	20
Lettering and background				
1. Good on white	4.4	49	7.2	65
2. Small on white	2.8	31	5.2	195
3. Very small on white	1.9	21	3.9	800
4. Small on white	2.3	26	4.5	400
5. Small on white	3.0	33	5.4	170
6. Small on white	2.7	30	5.0	230
7. Fair on red	3.2	36	5.6	150
8. Good on light blue	4.3	48	7.0	70
9. Good on yellow	4.6	51	7.4	60
10. Large on yellow	5.3	59	8.2	45
11. Small on white	3.0	33	5.4	170
12. Small on white	2.7	30	5.0	230
13. Small on light green	2.8	31	5.2	195
14. Small on orange	2.0	22	4.1	625
15. Small on light blue	2.0	22	4.1	625
16. Small on red-orange	2.1	23	4.3	500
17. Small on red	1.8	20	3.7	1075
18. Small poor on green	1.6	18	3.5	1500
19. Large on white	5.6	62	8.6	40
20. Fair on white	4.1	46	6.8	80
21. Fair on white	3.8	42	6.4	95
22. Fair on white	3.3	37	5.8	130
23. Type on poor newsprint .	4.4	49	7.2	65
24. Small type on newsprint	2.6	29	4.9	275
Average, 24 samples	3.2	36	5.6	150

per cent of that of the conservative standard. All but three have equivalent type-sizes less than that of average newspaper body-text (7 point). If the visibility of these specimens from average comic books were to be raised to that of the standard, solely by increasing the level of illumination, most of them would have to be illuminated by more than 100 foot-candles. It will be noted that the low visibility of some of the specimens was due chiefly to small size of lettering or type and low contrast, due to colored back-

ground. In all cases the poor quality of paper and printing contributed to low visibility.

Among the economic considerations in the publication of comic books are such factors as cost of paper and of printing. All other factors which contribute to low visibility and, therefore, to poor readability can be improved without increasing the cost permanently. Some conclusions can be drawn rather safely for run-of-the-mill comic books.

Conclusions

The character of the lettering should be greatly improved. Small size should be abandoned. The lettering should be vertical, done in straight lines, and with adequate spacing between the lines.

The use of backgrounds of dark colors (low reflection-factors) should be abandoned because they greatly decrease the contrast between the lettering and its background. The lighter colors, such as yellow, are not so bad in this respect. However, the safest procedure is to use no color in backgrounds for type and lettering.

Inasmuch as it has been found to be economically possible to employ fairly good paper and printing in books for children—and in a few comic books—it does not appear unreasonable to suggest improvement in these factors in all comic books.

Many details could be discussed to advantage, but improvements in the foregoing are so readily achieved that they represent appropriate starting points. Anyone who will study and comprehend the data in Tables I and II cannot avoid the conclusion that most comic books represent a great step backward in the matter of safeguarding the eyesight of children. That the severity of these visual tasks can be reduced is obvious from these data and from more complete studies of reading as a visual task. Resentment against the comic book as a visual task is increasing. Revealing data, such as those presented herewith by means of measurements and techniques, should awaken parents and publishers. Everyone interested in reading matter for children should give attention to this matter. Unless comic books can be greatly improved from the viewpoint of visibility and readability, they should not survive. The measurements and interpretations presented in this study provide factual evidence which publishers should neither excuse nor escape.

The Specialization of Conservation of Vision in Institutional Nursing^{*}

Cora L. Shaw, R.N.

PRESENTS the various aspects of sight conservation as related to institutional nursing—in the out-patient department and in the hospital—and discusses the education of the student nurse in eye hygiene.

THE term nursing has been interpreted recently as health conservation in its broadest sense. With the acceptance of this interpretation by educators in the field of nursing, greater emphasis is placed now on the prevention of disease, health development and preservation. In the nursing world there is need for an increased interest in the conservation of vision as a part of this effort. The nurse doing specialized nursing work in a hospital on the eye service, or in the out-patient department, is neither fulfilling her responsibilities, nor availing herself of her opportunities, if she does not include the conservation of sight as an integral part of that work.

In hospital situations most of the nurse's contacts are with patients suffering from eye diseases. Here the task at hand requires that she give the patient the best specialized nursing care and that she do her part in the restoration of vision and the relief of symptoms. The nurse must then have a thorough knowledge of the development and function of the eye, the cause of disease, symptoms, treatment, and nursing attention. She must understand the approach to patients with visual impairments or those with only temporary loss of sight due to local treatment. She must be conscious of the necessity for maintaining a quiet, cheerful atmosphere.

^{*} Presented at the Institute on Conservation of Vision, Syracuse, New York, October 7, 1941, under the auspices of the New York State Commission for the Blind, in co-operation with the New York State Nurses Association (District No. 4).

Yet the specialized nurse should ever be aware of the necessity for mental diversion. It is her obligation to provide it for the patient. Such diversion is particularly important during the period of treatment. Outside stimuli taken in by the eye are necessarily excluded at this time and eye patients are inclined to draw within themselves, becoming mentally depressed. The nurse should also be extremely gentle, patient and observant. She should be skilled in the performance of nursing procedures for the treatment and comfort of the patient. Thus equipped, a nurse can ably assist the ophthalmologist in preventing loss of sight and in restoring the proper function of the eyes.

But, if she uses her knowledge, understanding, and skill only to aid in the care of the existing eye condition, she has fallen far short of her purpose. The patient and his family are acutely interested in the cause of his disease. We have all heard patients say to the physician when he has given his diagnosis, "Doctor, what is the cause of that?" or "How did I develop such a condition?" Questions frequently come from the parents and other members of the family. There is no more fertile ground for the seeds of conservation of vision than in the receptive minds of such people. The nurse strategically located on the eye ward and in the eye out-patient department can carry out a far-reaching, active teaching program.

In the Out-Patient Department

In the out-patient department the nurse sees many patients whose complaints are relatively minor, but who have conditions which require constant observation and treatment by the ophthalmologist. For example, certain insignificant symptoms of the patient with early chronic glaucoma are not alarming or distressing to him. Nevertheless, the nurse should take time to explain in detail that these disregarded symptoms are occasionally the first warning of serious trouble. The entire progress of the disease may be prevented through an explanation of the treatment prescribed, with emphasis on the doctor's instructions for return visits.

To a patient the suggestion of necessary surgery of the eye is a fearful experience. In the out-patient department the nurse frequently allays the patient's fears to a point where he will be able

to enter the hospital in a desirable mental state. A patient thus prepared reacts more satisfactorily to surgery and hospitalization.

Likewise, the nurse in the out-patient department has numerous opportunities to teach parents about the care of their children's eyes. She should endeavor to learn the reading habits of the children and advise their families on the correction of faulty customs. The importance of good hygiene as well as the need for adequate diet and rest should also be impressed upon parents. These are all factors in sight conservation.

In the Hospital

Any period of hospitalization carries to the patient and his family more or less of an educational message, which may be accidental or incidental. A definite program of education could well be evolved, however. The daily contacts of the institutional nurse provide her with an opportunity of reaching a large and varied group in the community. She can and should impress upon the minds of these people the necessity for regular examinations by an ophthalmologist, the seriousness of neglecting treatment, and the importance of general good physical and mental states in maintaining eye health.

Diet as a factor in eye efficiency has not received the attention it deserves until recently. While administering the patient's diet in the hospital, the nurse should instruct the patient on the value of vitamins and call to his attention the eye conditions resulting from lack of vitamins and undernourishment. This is an opportunity for the nurse to instruct the patient in the selection of a balanced diet. Patients, with both eyes covered, may react unfavorably to being fed. A description of the tray, its contents and arrangement, arouses the interest of the patient in his meal. The tactful nurse can make meal times a pleasant period to which the patient looks forward.

There is a tremendous amount of misinformation and folklore related to the eye. The need for re-education is great. It is true that excellent printed material is available on this subject for public consumption. However, many of the group found in a hospital ward are not familiar with educational literature of this type. Yet the patient's confidence in the nurse enables her to correct number-

less misconceptions as well as to stimulate an interest in literature promoting health education, such as that published by the Department of Health and the National Society for the Prevention of Blindness and many other organizations.

The sympathetic and understanding nurse is the one in whom the patient confides his economic and social problems. Frequently these factors contribute to the loss of vision. As a part of the nurse's store of knowledge in such matters she should be familiar with the various agencies in the community equipped to provide assistance. Also the economic aspect of visual defects and the cost of glasses should be understood by the nurse. Moreover, she should make it possible for the patient to avail himself of the aid at hand. Help of this kind can be administered most effectively through the hospital social service department, but it is expected that a nurse be alert to such problems and refer them to the social service department as they develop.

Through evidencing an interest in the members of the patient's family, the nurse frequently discovers eye needs among them. Oftentimes her influence may prompt them to secure a necessary examination and appropriate treatment.

This education of the patient and his family in the conservation of vision cannot be accomplished by a few hurried admonitions and words of advice as the patient is being discharged. It is a program that should be instituted at the nurse's first contact with the patient and carried on throughout his hospital stay. Neither should it take such form that the patient will develop a fear of blindness or an anxiety neurosis. Rather, it should be based on sound educational principles. Dr. Jesse F. Williams, Professor of Physical Education, Teachers College, Columbia University, has said: "It is of value to think of health as that condition of the individual that makes possible the highest enjoyment of life, the greatest constructive work, and that shows itself in the best service to the world. It involves keeping the body and the mind at the highest levels, living at one's best and not being satisfied with mere absence from hospital and sick room."*

The study of the eye—its development, health and disease—is

* Jesse F. Williams, *Personal Hygiene Applied*, New York: W. B. Saunders & Co., 1938.

one of the most highly specialized fields of medicine. Because of this fact its study has been left almost exclusively to those specifically interested and engaged in that field. While we may agree that it must remain a fine specialty, we also recognize the need for interest, knowledge and assistance from all those groups who contribute to the advancement of general good health.

Education of Student Nurse in Eye Hygiene

To obtain a maximum of assistance in conservation of vision from the nursing profession it is necessary to imbue every student nurse with a fuller understanding of the problem. The student in the hospital spends much of her time learning to care for the manifestly ill, or the individual with a disease. Therefore she is in danger of acquiring a narrow view of nursing. In the educational program of the nurse more prominence should be given to preventive measures and the recognition of early symptoms. Her own health examination can be used as a teaching opportunity. The ophthalmological examination of each student upon entrance to the school is not only a necessary part of the admission procedure, but does much to impress her with the importance of such an examination. In addition to the clinical experience on the eye service, which is a part of the basic course, nurses desiring to do specialized work in the eye field will give the subject more intensive study after graduation. Hence the purpose of the basic course and clinical experience is so to acquaint the student with the subject that she will be intelligently conscious of the importance of eye health, acquire a certain degree of skill in eye nursing, have some knowledge of the cause and prevention of eye conditions, and be familiar with the methods of conserving vision.

After completion of their hospital course many of these students engage in general medical or surgical nursing, public health nursing, school, or industrial nursing. These are the nurses who need and desire a greater knowledge of the conservation of vision. To prepare nurses for opportunities open in this field, the clinical experience of an eye service should provide not only the care of patients with eye diseases, but an educational program which will equip the nurse to do her part in conserving sight.

The eye should be presented to the student as a functioning

organ, with emphasis on preventive measures and the consideration of disease, both from the point of view of loss of function and the methods of treatment, as a means of restoration of sight or prevention of further deterioration. The interdependence between eye health and general health should be stressed in teaching the relationship between conditions, as, diabetes and lens changes, hyperthyroidism and exophthalmos, central nervous system diseases and visual changes, syphilis and keratitis, kidney disease and retinitis, et cetera.

During prolonged febrile diseases and throughout convalescence from debilitating illness, the eyes merit careful attention. If the student understands the necessity for care and the consequences of its omission, she will be more alert to the problem when it arises in patients under her supervision.

The study of drugs used in examination and treatment of the eye provides an excellent opportunity to re-emphasize the danger of the use of strong solutions and the safety measures to prevent the introduction of such chemicals into the eye. Here again is an opportune time to recall the use of silver nitrate as a prophylaxis for the eyes of the newborn.

Certain toys in the hands of children become a serious eye menace. By recognizing the potential danger of these playthings which may injure the eyes, the student renders a valuable service in her capacity as parent counsellor.

The emergency treatment of burns, foreign bodies, and other injuries to the eye should be familiar to the student. She is thus enabled to carry out the required treatment skillfully when such emergencies are encountered. Other matters, as lighting, diet, rest, importance of regular ophthalmological examinations and the recognition of early symptoms, all need more emphasis in the student's curriculum.

Conclusion

I have not attempted to outline a complete course of study for the student on a hospital eye service, but rather to call attention to some of the points which are more frequently overlooked. Perhaps the urgent need for nursing care required by patients may be the cause of this apparent neglect. Yet a student should not be ex-

pected to take full responsibility for specialized care in her brief period of experience. A teaching program of this intensity can be carried out only with a stable staff of experienced graduate nurses to bear the bulk of the responsibility.

Nursing education in all fields must include prevention of disease, health development, and maintenance. The atmosphere provided by an eye service is an excellent one in which to impress upon the minds of the students the extreme importance of these aspects of eye nursing. This achievement will result in a more widespread knowledge of eye health among nurses, making available to the community a greater number of nurses prepared to assist in sight conservation. If we who control the education of the student in this field will keep our minds alert to our aim, we shall expand our program to include time and effort in the interest of conservation of vision.

Report on the Glaucoma Campaign*

Mark J. Schoenberg, M.D.

PROGRESS report of the work of the Society's Committee on Glaucoma.

LAST year the National Society for the Prevention of Blindness decided to initiate an active campaign for the prevention of blindness from glaucoma. The impetus for such action had already been given by the late Dr. Park Lewis, one of the founders of the Society. After his death in the fall of 1940 I was honored by being asked to take the chairmanship of the Committee on Glaucoma, and I take this opportunity of submitting this report of activities during the past year. Any progress made is the result of the tireless efforts of the membership and the Society's staff.

At the outset it was realized that the difficulties we had to overcome were four-dimensional.

The first and chief difficulty was to clarify the need for such campaign and formulate its objectives. The second was to overcome the general indifference and apathy toward a problem which involves a great deal of effort and work. The third was to secure the co-operation of those who would be indispensable if we want to assure a successful outcome of the campaign. And the fourth problem was to attain for ourselves, the medical profession, and the public at large an optimistic viewpoint—absolutely necessary if victory is to be won.

First Step

The object of our task is, as was stated at the beginning of this report, to help reduce the percentage of blindness from glaucoma. One of the methods decided upon for attaining our objective was

* Presented at the Biennial Conference of the National Society for the Prevention of Blindness, New York City, December 4, 1941.

a campaign to bring about improvement of clinic services. As to the need for such, we had only to consult our own personal experience and that of many ophthalmologists who have spent several decades in eye clinics. Additional proof was furnished by surveys of clinical facilities and glaucoma records of a number of busy eye clinics in and outside of New York City. These surveys brought to light many weaknesses and shortcomings that pointed to the urgent need for remedial measures.

Second Step

Having ascertained certain facts, we started out in organizing a Committee on Glaucoma, consisting of one prominent ophthalmologist from each eye institution located in Greater New York and of representatives from certain related and professional groups whose responsibility it would be to demonstrate what might be accomplished through united efforts and standardization of procedures. We had a very pleasant experience in that the response to our invitation to join the committee was most enthusiastic. Not one refusal was received! This proved that the time for action was fully ripe.

Third Step

As the organization of the committee proceeded, a plan was submitted to it for the introduction of a special glaucoma service in clinics. The plan has been unanimously accepted. A printed form for glaucoma records, containing the most important items necessary for establishment of the diagnosis of glaucoma and the therapeutic indications, was also submitted and adopted. Each representative on the National Society's committee undertook to appoint in his institution two or more ophthalmologists, as well as a representative of the social service department when available, to assume responsibility for securing complete data.

Fourth Step

Medical boards and other authorities were asked to approve and support the innovations mentioned above. Already, some of the institutions have acted favorably upon the matter and are promis-

ing moral support. We are confident that the remaining eye institutions will act in a similar spirit.

Fifth Step

We are gratified to announce that others who have joined the committee directing this local demonstration and campaign against glaucoma are representatives of the New York State Bureau of Services for the Blind, the United Hospital Fund, hospital trustees, and eye hospital superintendents.

Sixth Step

Recently, a conference of social workers from the New York eye institutions was held at the Society's office for the purpose of familiarizing this group with the objectives of the glaucoma campaign. An animated discussion took place, which helped considerably to clear up a number of obscure points.

Seventh Step

The establishment of contacts with the public, general practitioners, and other groups directly or indirectly concerned with the successful issue of the glaucoma campaign was begun. Radio broadcasts on glaucoma have been given by Dr. C. Gregory Barer, of the National Society's staff, and by Dr. Daniel B. Kirby, a member of the committee. Through the good offices of Dr. Algernon B. Reese of the committee, an article on glaucoma has appeared in *Life* magazine. A pamphlet on glaucoma for general practitioners and one for the glaucoma patient are in preparation. Papers* have been read at the recent annual meetings of the Medical Society of the State of New York, the American Ophthalmological Society, and the American Academy of Ophthalmology and Otolaryngology on: (1) the general practitioner's responsibility; (2) a survey of records; and (3) the problem of preventing loss of sight of glaucoma patients in clinics, respectively. And not the least important is the leaflet containing rules and instructions for glaucoma patients, which has been made available for distribution. It is being asked for every week by physicians throughout the country.

* Available upon request to the National Society for the Prevention of Blindness.

General practitioners, numbering about 185,000 in the United States, are seeing hundreds of thousands of patients daily in clinics and offices. A large percentage of these patients are forty years of age or older—the age when glaucoma is most prevalent. It is our firm belief that the general practitioner can contribute considerably toward the prevention of blindness from glaucoma. He should become familiar with early symptoms and signs of glaucoma, in order to refer suspected cases for treatment at a stage when this can be of greatest advantage. I am happy to report that, following presentation of the paper on this subject at the annual meeting of the Medical Society of the State of New York, the State Bureau of Services for the Blind and its Prevention of Blindness Service expressed the intention of taking up the educational phase of the campaign among general practitioners in this state.

Time and space are too limited to mention other activities, such as the awakening of a keen interest among American ophthalmologists and editors of ophthalmological journals, among members of various ophthalmological societies throughout the United States, etc. Neither is the time ripe to speak in visionary terms about other activities in view: glaucoma exhibits, special glaucoma clinics, a glaucoma research institute, scholarships for research on the various glaucoma problems, the spreading of this entire movement among South American and other countries.

In closing, I wish to express my gratitude to the National Society for the Prevention of Blindness and to the members of the Committee on Glaucoma who have shown such a splendid spirit of cooperation in beginning this greatly needed piece of work—the *campaign for the prevention of blindness from glaucoma*.

Glaucoma Program at the Massachusetts Eye and Ear Infirmary*

Garrett L. Sullivan, M.D.

THE author describes a glaucoma clinic set-up in which the social service department plays an important rôle. The doctor's use of the medical social worker, the duties of the clinic executive, and the follow-up, together with a program of class instruction for glaucoma patients, are included in the discussion.

What is Glaucoma?

Glaucoma is a broad term which signifies a state of increased intra-ocular pressure. There are several types of glaucoma, but by far the most common, and the one to which we will confine ourselves today, is that called chronic simple glaucoma.

Chronic simple glaucoma is an insidious disease of the eyes coming on usually in the fifth to sixth decades of life, affecting both sexes, and, if untreated, usually resulting in blindness. It is bilateral, affecting one eye before the other. Although we do not know the cause, we do understand the mechanism of the disease fairly well. It is unnecessary for me to state to this audience the frequency of blindness coming on in later life due to glaucoma, the large percentage of which is represented by chronic simple glaucoma.

One might aptly describe the disease, especially in its early stages, as characterized by an absence of symptoms and thus we term it an insidious disease. Usually the presenting complaints of the patient are frequently vague and indefinite, and may vary from occasional blurring of vision to vague feelings of discomfort or seeing halos of colors about lights. Therefore, it is evident that, from the history of the patient, we may or may not obtain a clue

* Presented at the Biennial Conference of the National Society for Prevention of Blindness, December 4, 1941.

as to the existence of the disease. For this reason, it behooves the examining physician to be well versed in the signs of glaucoma.

Signs of Glaucoma

There are three cardinal signs of glaucoma: (1) cupping of the optic disc; (2) elevated pressure in the eye; and (3) changes in the visual field. No examination of the eyes is complete without a check on all three points, i.e., examination of the fundus and optic disc, an estimate of intra-ocular tension, and check on the visual field by perimeter and tangent screen. The visual acuity, as measured by Snellen's chart, is usually normal, or nearly so, in the early stages, and quite often even in the later stages, of the disease. Damage to the eye may be demonstrated in the visual field, where constriction of the nasal side may be found, or one may find a sickle-shaped area of blindness surrounding the fixation spot. Such scotomata enlarge gradually and result in greater and greater decrease in the visual field, so that ultimately all vision is lost. Now, because of anatomical and physiological factors, it so happens that commonly one of the last portions of the visual field to be blotted out is the central area, the point of highest visual acuity. It is for this reason that so many victims of the disease are totally unaware of any visual disturbance in the early stages. These changes in the visual field reflect the pathological cupping of the optic disc, and there is a direct relationship between the amount of cupping of the disc and the visual field loss.

Mechanism of the Disease

The tension of pressure within the eye is the immediate cause of all this damage and, as stated, we know more about the mechanism of the disease than we do of the ultimate cause. Briefly, the circulation of fluid in the eye is controlled by a delicately regulated balance between inflow and outflow. Any increase in the rate of inflow or decrease in the rate of outflow is bound to result in an increase of pressure within the eye, dangerous to vision. It is vital, therefore, to the saving of sight in glaucoma that the pressure be controlled. Such control may be exercised in one of two ways, medical or surgical. Each case is an individual one and no rules can be set to apply to all. In general, however, surgery is indicated

sooner or later in most cases, practically always in those under 70 years of age.

We will not concern ourselves with the details of medical and surgical procedures in the therapy of glaucoma. It is sufficient to say that the crux of the glaucoma problem, short of determining the etiology, lies in the early recognition of the disease and institution of proper therapy. The earlier the diagnosis, the better the prognosis, as treatment is aimed at prevention of further loss of vision. Visual damage, already present, cannot be repaired, but it is universally agreed that what vision is still present can be saved in the great majority of chronic glaucoma patients.

Program at Massachusetts Eye and Ear Infirmary

At the Massachusetts Eye and Ear Infirmary, as elsewhere, it has been our aim to preserve vision in the individual by medical and surgical measures. In follow-up of any case of glaucoma, it is certainly important to make frequent determinations of the intra-ocular tension, and for this reason every glaucoma patient at every visit has his tension taken and recorded. We use the new Schiötz instrument and, in certain cases where this instrument is not practical, the determination is made with the Soutter tonometer. All tensions are performed and recorded by a house-officer who spends his entire mornings, daily, for three months in doing this work, together with doing the most important part of the follow-up of glaucoma, namely, plotting the visual field, peripheral and central, of both eyes.

The field room, as we call it, is staffed every morning in the week, except one, by a member of the visiting staff and the house-officer. On one morning the house-officer carries on by himself. No technicians are employed in this work. One of the main purposes of this arrangement is to supply expert supervision and instruction for the house-officer in the technique and interpretation of visual fields. One cannot overstate the importance of such work in the proper and efficient follow-up of glaucoma. All other tests, including tension determinations, are of secondary importance. An effort is made to obtain visual field examination at least every six months, more often if necessary. This is the ideal toward which we strive, for several reasons not yet realized.

Tension Studies.—It is not rare to encounter some cases who show normal or near normal tensions and yet who have other definite signs of glaucoma. It has been found that frequent determinations of the tension over a 48-hour period, with the patient in the hospital, will show times when the pressure is definitely elevated above normal. Now, a few cases have been studied in this manner, but obviously for economic reasons the plan is not practical on a large scale in an out-patient clinic.

Staff Conferences.—Another facility available to the glaucoma patient is the weekly meeting of the staff where problems of diagnosis and therapy are discussed. In this open forum, the patient is afforded the benefit of the consensus of the staff.

Social Service and Its Rôle

I wish to speak now of the rôle of the Social Service Department in the program at the Massachusetts Eye and Ear Infirmary. In 1931, Dr. George S. Derby, then Chief of Service of the Infirmary, gave an address before the National Society for the Prevention of Blindness in which he cited the invaluable aid to be had from an efficient social service department. As he stated, glaucoma represents a difficult class of cases to handle because sight cannot be restored. Patients feel that they are not getting anywhere, become lax in their visits and in carrying out treatment, and they visit other clinics or drift away into the hands of quacks.

At the Massachusetts Eye and Ear Infirmary Miss Janet Gorton, whose services were first made possible to the hospital through the National Society, has been in charge of the medical social work for the glaucoma patients since 1928. The social worker's function in the clinic under the present set-up is threefold. She acts as social case worker, clinic executive and follow-up worker.

Patients with glaucoma, as with other chronic diseases, are confronted with the problem of long-time and often expensive medical care. Treatment includes the monotonous use of eye drops for life, with the possibility of repeated surgery. In addition, the patient has an underlying fear of blindness and of possible complete social and economic dependence as a result. Many patients with this disease are discouraged, and some have repeated periods of de-

pression, feeling that to continue treatment is futile when no hope can be given for improvement in vision. It is with such patients that the medical social worker can be of real assistance to the doctor in treating the patient. Each patient reacts to the knowledge of his diagnosis and the recommendations for treatment in his own way. Some need little or no help in following the doctor's advice. Others, who fear operations or who are not convinced that surgery is necessary, can be helped to accept surgery through consideration with the social worker of what the operation means to them from every point of view.

Doctor's Use of Medical Social Worker.—It is important for the medical social worker to be used by the doctor with such patients, if full co-operation in treatment is to be obtained. Frequent consultations between the doctor and social worker are necessary in order that the doctor may have some understanding of the patient's difficulties in accepting the medical recommendations and for the social worker to be fully informed of the importance of the medical recommendations for the individual patient concerned. The medical social worker has the responsibility of seeing the patient with glaucoma as an individual and understanding the problems which the disease creates for the patient as opposed to the problems the disease creates for patients in general. Having understood the particular situation, it is then her responsibility to attempt to work out some solution with the patient, whether it be in changing his attitudes toward his treatment or his handicap, or in helping him to make some satisfactory adjustment economically or environmentally through available community resources. These services constitute the medical social case work.

Duties of Clinic Executive.—As a clinic executive, the duty of the medical social worker entails:

1. Seeing that each patient has the necessary tests done before being examined by one of the clinic doctors. This usually means the recording of visual acuity and tension or arranging for visual fields, if they have been ordered.
2. After the doctor has examined the patient she makes certain, by detailed instruction, that the patient understands the directions for the use of any prescriptions for drops or ointment. In any busy clinic the patient frequently is rushed away from the doctor and is

more confused than ever. The social worker, by her instruction, clarifies to the patient just what he is expected to do.

3. Arranging for transportation of elderly and incapacitated people to and from the clinic.

4. Giving interpretation to a responsible member of the patient's family, in order that someone in the patient group may have a complete understanding of the patient's condition and be aware of the importance of his keeping clinic appointments and following the recommendations. Interpretation is also given to many social agencies in the community who need to understand the treatment planned, as those agencies are often responsible for the expense of the patient's medical care or for the direct support of the patient.

Follow-up

The Infirmary has a 100 per cent follow-up program for glaucoma patients which is handled in our set-up by the medical social worker. The follow-up is instituted on the patient's first clinic visit through social review of every patient. Each appointment which is not kept is followed up by letter and through personal visits by either the social worker herself or volunteers under her direction. An attempt is made to remove all practical obstacles which may be preventing a patient from keeping his clinic appointments.

Glaucoma Classes.—For the past two years we have been carrying out a program of class instruction for all glaucoma patients. These classes have been held on an average of once every two weeks from October to June. The attendance is limited to 25 patients from the clinic plus those who happen to be patients in the hospital at the time. We have further encouraged the patients to invite their relatives or friends who might be interested.

The aim of this innovation was to try to convey to their minds, in lay terms, an idea of the mechanism and therapy of glaucoma in the hope that thereby we might be able to remove some of the doubts and fears that beset the minds of these patients and to gain their interest and co-operation in the effort to preserve their vision. The necessity of controlling pressure, whether by drops or surgery, teaching the aim of therapy in the prevention of further loss of vision, and pointing out the best way to regulate their lives and habits so as to live with their disease, are only a few of the many

points covered by these talks. They are afforded an opportunity to ask specific questions which have been on their minds. In the hustle and bustle of a busy clinic, there is insufficient time to answer such questions, and the troubled, uncertain state of mind of many of them has been reflected in the type of questions asked. It has been a surprise to find so many depriving themselves of joy and happiness to be derived through reading and the movies, in the mistaken idea that they are saving their eyes. Needless to say, bizarre ideas relative to diet were also entertained by some. Now it is very difficult to estimate the value of such talks in terms of sight saving, but it seems logical to assume that, by giving the patient a better understanding of his affliction, closer co-operation will be obtained in carrying out recommended therapy. Numerous patients spontaneously expressed their enthusiasm and gratitude for the talks. In connection with these classes, I wish to pay tribute to the fine work performed by the medical social service worker in arranging attendance at the lectures.

These sessions are not only educational for the patient, but also for the doctor. It has been enlightening to find that many patients, for example, are fearful of operation on the strength of that popular fallacy, namely, that the eye is taken out and placed on the cheek during the operation. It is really remarkable the number of people who believe this, and I have often wondered about the source from which it arose. It has been further discovered that the fear of ether has been an obstacle to many. Naturally it takes little time to inform them that ether is not used.

Then there is the story of the patient who had had his eyes taken out and the backs of them "brushed off."

From these few examples it can be readily seen that there is still much ignorance in the layman's mind which must be overcome.

A record of attendance at each lecture is kept and also many of the questions asked. This proves helpful in arranging for subsequent sessions.

This program started as an experiment, and we feel so gratified by the response on the part of the patients that it is now a fixed part of the glaucoma program at the Massachusetts Eye and Ear Infirmary.

Conclusion

Before closing, I wish to present a few figures which indicate that glaucoma is assuming greater and greater importance as a clinic problem.

In his talk before this Society in 1931, Dr. Derby listed some figures to demonstrate the effect of placing a social service worker in charge of glaucoma follow-up work. They are as follows:

1926.....	209 active cases	300 follow-up
1927.....	262 active cases	
1928.....	582 active cases	(first year of medical social worker)
1929.....	740 active cases	
1930.....	740 + active cases	

At this time there was a daily average of 9.8 glaucoma cases in the clinic. Eleven years have passed, and we find that the daily average of glaucoma patients in the clinic has risen to 22. The total number of active cases being followed is roughly 800 (all types). It is interesting to note, however, that since 1936, when 380 new cases were seen, there has been a steady falling off to 296 new cases seen last year and 241 for the first ten months of this year.

The Restoration of Sight and Prevention of Blindness in Kansas^{*}

Harry E. Hayes

AN account of the Kansas State Department of Social Welfare program for the restoration of sight and the prevention of blindness.

AN ATTEMPT will be made in this paper to present the important facts in connection with the initiation, development, and operation of the Restoration of Sight and Prevention of Blindness programs in Kansas which are being carried on by the State Department of Social Welfare. Some of the results achieved and problems confronted will be discussed and a historic approach used in an effort to share more clearly the experience which Kansas has had in these fields.

The Kansas Social Welfare Act was enacted by the legislature in April, 1937, and included conformance with Federal requirements for the category of assistance known as Aid to the Needy Blind.† In addition, under Section 8, which describes the powers and duties of the State Board of Social Welfare, the following enabling clause was inserted:

“The State Board shall initiate or co-operate with other agencies in developing programs for the prevention of blindness, the restoration of eyesight, and the vocational rehabilitation of blind persons, and may create a department for the blind within the State Board. . . .”

The public assistance programs commanded the immediate attention of the newly organized state welfare agency and it soon

^{*} Presented at the Biennial Conference of the National Society for Prevention of Blindness, December 5, 1941.

† Chapter 39, General Statutes of Kansas, 1939 Supplement.

became apparent, from the instructions issued by the federal Social Security Board regarding the determining of eligibility for Aid-to-the-Blind applicants, that a state supervising ophthalmologist and eye examiners would be needed. Eligibility is partially dependent upon the extent of the applicant's vision, and medical knowledge is necessary to accept or reject applicants properly on this basis and to report on eye conditions.

Consequently, the Kansas Medical Society was requested to appoint representatives to advise with officials of the State Department of Social Welfare on this matter. A meeting followed on July 30, 1937, at which the representatives of the medical society made the following recommendations: (1) that the state supervising ophthalmologist be a part-time employee of the Department of Social Welfare; (2) that his salary be \$200.00 per month; (3) that he be allowed to maintain his office in his home community; and (4) that a fee of \$5.00 be paid for eye examinations. There was complete agreement with the Social Security Board regulation that eye examinations in the Aid-to-the-Blind program should be made only by doctors of medicine who confined their practice to the eye, or the eye, ear, nose and throat. The representatives of the medical society expressed a great deal of interest in the new Aid program because of the reliable information it would gather regarding the causes of blindness, and the co-operation of the profession was offered in working out the details of the program.

The first step to be taken by the State Board of Social Welfare was the appointment of a state supervising ophthalmologist and the setting up of a panel of examiners. Representatives of the Kansas Medical Society were again invited to meet with officials of the Department of Social Welfare to discuss these questions. The meeting was held and a request made that the medical society name the doctor to be offered the position of supervising ophthalmologist. It was the feeling on the part of social welfare officials that such a designation, being divorced from political implication, would work to the advantage of the program. The medical society felt, however, that it would be more desirable for them to supply a list from which a state supervising ophthalmologist could be chosen and to assist in establishing a panel of examining ophthalmologists.

A list of five or six qualified ophthalmologists was supplied by

the Kansas Medical Society, from which a prominent Kansas City, Kansas, eye specialist was chosen as state supervising ophthalmologist by the Social Welfare Board. He assumed office the first of August, 1937. Simultaneously, a graduate nurse with four years' experience in social case work, part of which was served in a hospital social service department, was appointed on a full-time basis to serve as field secretary to the state supervising ophthalmologist. Her duties were to include the organizing of work for execution by the supervising ophthalmologist, and making contacts with examining ophthalmologists and county departments of social welfare to interpret the program and explain procedures.

Questionnaires then went out from the office of the Kansas Medical Society to the secretaries of all county medical societies in the state requesting the names of medical doctors in the respective counties who limited their practice to the eye, or to eye, ear, nose and throat. As the questionnaires were returned they were checked against the lists of the American Medical Association, the College of Surgeons, Board of Ophthalmology and the Board of Otolaryngology. Notations were made as to the affiliation of the individual doctors with these groups and the questionnaires turned over to the supervising ophthalmologist. He, in turn, sent questionnaires directly to the doctors who had been reported, asking if they confined their practice to the eye, or the eye, ear, nose and throat, and whether or not they did eye surgery. Replies to these questions were received over the doctors' signatures and were placed in the file of the supervising ophthalmologist. Although the receiving of adequate eye examinations for Aid-to-the-Blind was the primary interest at this point, everyone concerned was aware that a treatment program to restore eyesight would probably follow soon, since enabling legislation had already been passed. The supervising ophthalmologist, consequently, wanted as much information as he could secure regarding the individual abilities of the doctors.

A tentative panel of qualified examiners was set up about the middle of August, 1937, which included 94 doctors of medicine, who limited their practice to the eye, or to the eye, ear, nose and throat, and who resided and were duly licensed in the state of Kansas. Although there was not an examiner designated for each of the 105 Kansas counties, there was, fortunately, a wide geographic distribution of examiners.

After consulting with officials of the Department of Social Welfare and the Kansas Medical Society, and corresponding with the Social Security Board, the supervising ophthalmologist drew up a plan of procedure for conducting eye examinations which was approved by the Social Welfare Board. On August 24, 1937, instructions regarding this procedure were sent to all county departments of social welfare and all medical doctors in the state. It was felt in the latter instance that the medical profession in general should be informed of the Aid-to-the-Blind program, since it has definite medical implications and their co-operation was needed. A list of the 94 approved examiners was sent to each county department of social welfare and was published in the *Journal* of the Kansas Medical Society for September, 1937.

Briefly, the procedure for securing eye examinations was outlined as follows: When an application for Aid-to-the-Blind is received at a county department of social welfare, the applicant's eligibility from all standpoints other than the extent of his visual deficiency is determined first. If he is found eligible for public assistance, he is informed that he must submit to an eye examination. A completely free choice of approved examiner is the privilege of the applicant. He is given an authorization form signed by the county director to be presented to the examiner. Following the examination the examiner makes a notation on the authorization form indicating that he has examined the patient's eyes and forwards it to the office of the state supervising ophthalmologist. This constitutes the examiner's claim for the examination fee. It is accompanied by an examination report form in duplicate which bears information coming out of a rather complete ophthalmological examination and which is required by the Social Security Board. The supervising ophthalmologist determines from the eye examination report whether the applicant's visual handicap is pronounced enough to make him eligible for the Aid-to-the-Blind category. He makes a written entry on both copies of the eye examination report regarding the disposition of the case and forwards one copy to the county department of social welfare which referred the case, together with a separate form certifying that through examination the applicant has been found eligible or ineligible for Aid-to-the-Blind.

Re-examinations for applicants applying two or more times for Aid-to-the-Blind or for recipients of Aid-to-the-Blind who have undergone a change of eye condition are handled in this same manner, except that prior authority must be secured from the supervising ophthalmologist before referral for the re-examination can be made.

In the instructions to examiners they were urged to conduct examinations in their own offices whenever possible. An appeal was made for the co-operation of the examiners in obtaining the highest type of examinations, and complete reports. A fee schedule was set up for the payment of five dollars for eye examinations, five dollars for consultations, and five dollars for re-examinations.

The definition of blindness used by the supervising ophthalmologist in determining eligibility for Aid-to-the-Blind is the generally accepted one which is used by most states. An applicant is considered eligible for Aid whose visual acuity is 20/200 or less in the better eye with correcting glasses, or whose visual acuity is more than 20/200 but who has a field defect in which the peripheral field has contracted to such an extent that the widest diameter subtends an angular distance no greater than twenty degrees.

By the first of September, 1937, eye examination reports began coming in from throughout the state to the supervising ophthalmologist. Large numbers were received daily, at first, but the number gradually decreased to a smaller but steady inflow as the visually handicapped persons previously receiving assistance were placed in the Aid-to-the-Blind category.

The supervising ophthalmologist was very busy handling the influx of eye examination reports at this time, but with the possibility of a treatment program in the offing he gave special attention to the treatment recommendations and prognosis noted on the eye examination reports by the examiners. He set up a file placing cases with recommended treatment into three classes:

Class A—Cases eligible for Aid-to-the-Blind in which immediate treatment was indicated.

Class B—Cases eligible for Aid-to-the-Blind in which treatment was recommended but was not of an urgent nature.

Class C—Cases ineligible for Aid-to-the-Blind through the eye examination but for whom treatment was indicated.

Officials of the Department of Social Welfare began thinking concretely about the form a restoration of sight program should take and early in September further advice was requested from the group of officers of the Kansas Medical Society, which had given their counsel previously. The group had offered to serve as an advisory committee to the Department of Social Welfare, but at this point they expressed the feeling that a committee of ophthalmologists could serve better in this capacity. Consequently, a recently organized conservation of eyesight committee of the medical society, composed of ophthalmologists, was designated to act in an advisory capacity.

The first meeting of the Conservation of Eyesight Committee was held September 18, 1937, with the supervising ophthalmologist attending as an ex-officio member. The possible development of a restoration of sight program was discussed, but no definite conclusions arrived at. The supervising ophthalmologist was requested to provide additional information regarding blindness in Kansas from his eye examination reports at a later date.

The supervising ophthalmologist and members of the Conservation of Eyesight Committee attended the American Academy of Ophthalmology and Otolaryngology in Chicago during October, 1937, and had an opportunity of conferring with ophthalmologists from other states regarding problems arising in the Aid-to-the-Blind programs as well as an opportunity to discuss plans of extending these programs to include the restoration of vision. A special meeting was held to discuss these specific matters, which was attended by the deputy director of the Department of Social Welfare as well as the interested Kansas doctors. This opportunity did much to clarify thinking regarding the proposed restoration of sight program in Kansas.

The Kansas Social Welfare Act authorized the creation of the Division of Services for the Blind in the State Department of Social Welfare, and during November, 1937, its organization was undertaken with the employing of a supervisor and assistant supervisor. The supervising ophthalmologist and his field secretary became staff members of the Division of Services for the Blind. On the recommendation of the Conservation of Eyesight Committee the

term of office for the state supervising ophthalmologist was later limited to 18 months.

The newly created Division directed its efforts along the lines already started, with the establishment of a restoration of sight program as the first objective. It was legislatively empowered to function also in the areas of preventing blindness and providing vocational rehabilitation, but restoration of sight activities appeared to be the logical starting point because figures were becoming available showing a need for restorative treatment among Aid-to-the-Blind recipients. In addition, it seemed reasonable that any program for the blind should include facilities for correcting or minimizing the physical handicap and such service should precede efforts to assist individuals in making adjustments to their handicaps.

The question of how the proposed restoration of sight program would be financed presented a problem which was not quickly solved. It was first thought that since no appropriation had been made by the legislature for the functions delegated to the Division of Services for the Blind that financing would have to be done in the same manner used for public assistance grants, that is, on a federal, state, and county matching basis. However, on December 8, 1937, the Department of Social Welfare set aside an amount not to exceed \$50,000 of administrative funds to be used for the restoration of sight, prevention of blindness, and rehabilitation. Of this amount, \$25,000 was later designated for the conducting of a restoration of sight program, and approval of this type of expenditure was secured from the attorney general of the state.

The Division of Services for the Blind staff went to work in earnest to prepare definite plans for the restoration of sight program and members of the Conservation of Eyesight Committee were approached individually for advice during the following weeks. By early January, 1938, the plans had taken fairly complete form and the supervising ophthalmologist requested the chairman to call a meeting of the Conservation of Eyesight Committee to consider them. A meeting was held January 9, 1938, at which the supervising ophthalmologist reported on the contemplated medical program. The plan as outlined was approved by the committee.

The next few months were taken up with preparing necessary

forms and a final draft of instructions regarding the restoration of sight program for the county departments of social welfare and the ophthalmologists throughout the state. Since the program was to be integrated into the Department of Social Welfare, the procedures had to conform to those previously established where parallels could be drawn, and step by step forms and instructions were cleared with other divisions of the Department of Social Welfare. Much help in preparing the operating methods of the new program was given to the staff of the Division of Services for the Blind by individual members of the Conservation of Eyesight Committee and the executive secretary of the Kansas Medical Society.

The instructions regarding the procedure to be followed in the restoration of sight program were completed in detail in April, 1938. However, since the program was to be largely a medical program, the State Department of Social Welfare submitted the plan of procedure to the Kansas Medical Society for the approval of that organization. Prior approval had been secured from the eye specialists, but the co-operation of the profession in general was felt desirable. The executive committee of the medical society studied the plan and gave their endorsement of the program.

On April 14, 1938, instructions regarding the procedure to be followed in the restoration of sight program were sent to all county departments of social welfare and all approved examining ophthalmologists in Kansas. The following description of this program was set forth in the instruction, and the plan outlined has been followed up to the present time.

The restoration of sight program is designed to promote the restoration of vision among recipients of Aid-to-the-Blind. The entire cost of this service, including all necessary medical, surgical, and nursing care, hospitalization, drugs, and glasses is borne by the State Department of Social Welfare. The county departments of social welfare are required only to furnish transportation for the patient to and from the ophthalmologist's office or the hospital.

The list of ophthalmologists approved for participation in this program of treatment is identical with the list of approved examiners for Aid-to-the-Blind. All Kansas hospitals approved by the American College of Surgeons are approved for the extending of care to patients receiving service under the restoration of sight

program. A group of reputable optical companies has been accepted for participation in the extending of service under the program.

Selection of individuals for whom restoration of sight may be attempted is made by the state supervising ophthalmologist from recommendations made by the examining ophthalmologists following examination to determine eligibility for Aid-to-the-Blind. In cases where it appears that the recipient's vision can be restored or preserved through treatment, the supervising ophthalmologist communicates with the county departments of social welfare advising that the cases will be approved for treatment. Approval is also frequently given when the comfort of the patient is all that can be achieved.

The county director or home visitor informs the recipient that treatment is available for him and urges that he consult an ophthalmologist on the approved list. The ophthalmologist chosen by the client is usually the one who made the eye examination, but within practical limits it is stressed that the client has a free choice of an approved ophthalmologist. Compulsion is avoided and the final decision as to whether treatment will be accepted or rejected is freely made by the client. However, it is the duty of the ophthalmologist to explain the eye condition and hoped-for results of the indicated treatment to the prospective patient and give a full account of the possibilities for success or failure.

A set of forms is used beginning with a "treatment agreement" signed by the patient and ending with a state claim voucher on which payments are made for treatment extended. The attending ophthalmologist is responsible for all treatment in a case including the services of co-operating facilities, such as hospitals, laboratories, optical companies, consulting physicians, etc. When treatment has been completed, the attending ophthalmologist reports the progress made and need for future attention in each case to the supervising ophthalmologist.

Under the program it is possible to include general medical care for systemic conditions which relate directly to eye conditions. In these instances the general practitioner is regarded as a co-operating facility in the extending of treatment and works under the supervision of the attending ophthalmologist. However, before general

medical care is extended, an effort is made to secure this service through a community resource.

A schedule of allowable services and the corresponding fees was drawn up by the Conservation of Eyesight Committee of the Kansas Medical Society and approved by the State Department of Social Welfare. The fees represent approximately 50 per cent of the fee usually charged by ophthalmologists for similar services performed in their own practice. For surgical cases the fee covers pre- and post-operative care, as well as the actual surgery. In surgical cases in which the vision can be improved by glasses, refraction and dispensing of glasses are included in the surgical fee, but the cost of the glasses is not included.

A special day rate for hospitalization was worked out with the Kansas Hospital Association. This fee covers the cost of a ward bed, general nursing care, board and room, necessary medicine, drugs, dressings, and laboratory tests. An additional fee is paid for operating room service. Medicines prescribed in the doctor's office are paid for by the attending ophthalmologist and reimbursement made by the Division of Services for the Blind.

Blood Wassermanns drawn in the doctor's office are sent to the Public Health Laboratory of the State Board of Health. Laboratory tests for blood Wassermann, spinal fluid, blood count, urinalysis, etc., when taken in the hospital, are sent to the hospital laboratory. When such facilities are not available, specimens are mailed in the usual manner to the state laboratory. Special tissues may be sent to the laboratory of a private pathologist and the state supervising ophthalmologist consulted regarding the fee for this service. X-ray examinations are made at the request of the attending ophthalmologist but are limited to examinations of the orbit or of the head.

The attending ophthalmologist may avail himself of the consultation of another doctor. In these instances a fee is allowed for consultation service but no transportation expense is allowed for the consulting physician. Special nurses may be engaged at the prevailing rates in the community.

During the early part of May, 1938, the state supervising ophthalmologist supplied the Division of Services for the Blind office with a list of names of Aid-to-the-Blind recipients who were eligible

for restoration of sight treatment on the basis of the diagnosis, prognosis, and attending ophthalmologist's recommendations contained on the eye examination reports. These cases represented an accumulation from the beginning of the Aid program, but were readily accessible in the supervising ophthalmologist's file of potential treatment cases. The Division office then sent lists of these eligible cases to the county departments of social welfare in the respective counties in which the clients resided so that plans for treatment could be initiated for those individuals desiring it. By the middle of May, 1938, the restoration of sight program was well under way with current applicants for Aid-to-the-Blind, as well as previous recipients, receiving treatment.

A summarization of the restoration of sight program, after it had been in operation for approximately eight months, was made on December 31, 1938. During this period the supervising ophthalmologist approved 434 cases as eligible for treatment and notified the county departments of social welfare that the service was available for their clients. Treatment had been completed in 83 cases at a total expense of \$6,591.51, or an average cost per case of \$79.41. At the end of the period 118 cases were under treatment and no indication had been made that the 233 additional eligible persons intended to avail themselves of the medical care.

Of the 83 individuals for whom treatment had been completed during 1938, 63 had achieved a restoration of vision sufficient to make them ineligible for Aid-to-the-Blind.

An analysis of the progress of the restoration of sight program made toward the end of 1938 by the supervising ophthalmologist revealed a group of cases needing immediate treatment which were ineligible for this service under the program. The group included those applicants for Aid-to-the-Blind who were found ineligible through an eye examination, but who had eye conditions which, if not treated, would result in a greater loss of vision and in some cases probably result in blindness. The supervising ophthalmologist recommended the inclusion of these cases in the treatment program of the Division of Services for the Blind and estimated that the cost of providing this service would be less than treatment for restoration of sight cases, since in most instances it would be administered in the doctor's office, eliminating surgical and hospital fees.

The Conservation of Eyesight Committee expressed approval of extending the treatment program and indicated particular interest in glaucoma patients excluded from the restoration of sight program because of ineligibility for Aid-to-the-Blind.

On January 10, 1939, the State Department of Social Welfare passed a minute setting aside \$5,000 of the \$50,000 previously designated for expenditure by the Division, for the purpose of providing necessary eye treatment for indigent persons having more vision than allowable for Aid-to-the-Blind.

The extending of medical care to this new group of cases was called the prevention of blindness program. It was decided to use the same forms and procedure for these cases as were being used under the restoration of sight program. It thus developed that if an applicant for Aid-to-the-Blind is found upon eye examination to be in need of treatment, it can be extended at the discretion of the supervising ophthalmologist regardless of the present extent of the applicant's vision. However, in order to be eligible for treatment under the prevention of blindness program, the applicant must be accepted for some type of public assistance, which in these instances is other than Aid-to-the-Blind.

When the supervising ophthalmologist finds an applicant ineligible for Aid-to-the-Blind but feels that treatment is indicated, he notifies the county department of social welfare of the applicant's ineligibility for Aid in the usual manner but also notifies the county that treatment is available under the prevention of blindness program. Subsequent steps follow the restoration of sight program procedure except that all forms bear the notation "Prevention of Blindness" for accounting purposes.

On February 16, 1939, individual letters were sent to county departments of social welfare on approximately 50 cases which had become eligible for treatment with the initiation of the prevention of blindness program. This represented an accumulation of cases obviously in need of treatment which had been rejected for Aid-to-the-Blind during the preceding months. These cases were the first to receive treatment under the new program which has continued to function to the present time.

The activities of the Division of Services for the Blind were heartily endorsed by the Kansas Association for the Blind, an or-

ganization made up primarily of blind persons, and were brought to the attention of the 1939 session of the Kansas legislature. The result was that in April of that year the legislature earmarked \$75,000 of sales tax money for expenditure annually for the restoration of sight, prevention of blindness, and the rehabilitation of blind persons.* These funds became available to the State Department of Social Welfare May 1, 1939. The 1941 legislature earmarked a similar amount for these purposes to be spent during the two succeeding years.† The legislature in 1939 also removed the age limitation for recipients of Aid-to-the-Blind.‡ The original Social Welfare Act specified that an applicant for this category of assistance must be sixteen years of age or older, but with the discarding of this requirement medical care under the restoration of sight and prevention of blindness programs automatically became available to individuals of all ages.

From the beginning of the Aid-to-the-Blind program in September, 1937, until November 1, 1941, eye examinations were secured on 4,203 individuals. Of this number, 418 received two or more re-examinations. Of these cases, 1,054 were declared eligible for restoration of sight treatment. Six hundred and sixty-seven persons accepted treatment, 139 of whom were under treatment on November 1. Of the 528 cases in which treatment had been completed, 325 persons achieved restoration of sight in varying degrees, but in all instances sufficient to remove them from the Aid-to-the-Blind category. For various reasons, 387 persons did not accept treatment. Up to this date \$59,879.95 had been spent under the restoration of sight program at an average cost per patient of \$113.41.

During the period from the initiation of the prevention of blindness program to November 1, 1941, 537 cases were declared eligible for treatment. Of these persons, 434 accepted treatment, 114 of whom were under treatment at the end of the period. One hundred and three persons had not yet accepted the available medical service. A total of \$17,149.73 had been spent at an average cost per patient of \$53.59.

The following tables present a partial breakdown of completed treatment cases under the restoration of sight and prevention of

* Chap. 334, 1939 Session Laws.

† Chap. 383, 1941 Session Laws.

‡ Sec. 2, Chap. 200, 1939 Session Laws.

blindness programs on the basis of the eye conditions for which treatment was extended:

RESTORATION OF SIGHT PROGRAM

<i>Eye Condition</i>	<i>No. completed treatment cases</i>	<i>Per- centage</i>
Cataract.....	300	57.0
Serious refractive errors.....	68	13.0
Glaucoma.....	34	6.5
Trachoma.....	29	5.5
Various other conditions.....	97	18.0
Total.....	528	100.0

PREVENTION OF BLINDNESS

<i>Eye Condition</i>	<i>No. completed treatment cases</i>	<i>Per- centage</i>
Refractive errors.....	176	55
Glaucoma.....	30	9
Cataract.....	25	8
Pterygium.....	22	7
Enucleation.....	22	7
Trachoma.....	12	4
Various conditions.....	33	10
Total.....	320	100

According to figures published by the Social Security Board, Kansas ranks second among the states in the number of Aid-to-the-Blind cases closed because of complete or partial restoration of sight.* Using the average amount of Aid-to-the-Blind grants in Kansas as a basis, it can be estimated that a saving to the Aid-to-the-Blind program of approximately \$6,500 monthly is resulting at present from the fact that needed medical care was provided for recipients under the restoration of sight program. In addition it is reasonable to assume that at least a portion of the 434 patients who received treatment under the prevention of blindness program would have become Aid-to-the-Blind recipients if medical care had not been provided.

Although Kansas ranks sixth among the states with reference to

* Research Memo No. 1, April, 1941, p. 30, Table No. 26, "Reasons for Closing Aid to the Blind Cases During Fiscal Year 1939-1940."

the number of Aid-to-the-Blind recipients per 100,000 population* it is apparent that this ratio would be much higher if the restoration of sight and prevention of blindness programs were not in operation.

A number of activities are carried on by the Division of Services for the Blind, other than actual medical care, which are designed to prevent blindness and to increase the effectiveness of the medical programs. The duties of the staff member of the Division of Services for the Blind previously employed as field secretary to the supervising ophthalmologist have been altered so that she functions at present as a medical social worker with more than 50 per cent of her time available for field work. With follow-up attention on treatment cases as her primary interest, she visits the county departments of social welfare throughout the state, remaining in each county for an indefinite period, depending on the amount of work to be done. All county case records on cases approved for treatment are studied and conferences held with county social workers responsible for the cases in question. Case by case eye conditions and their implications are explained to county workers and suggestions made for any services which seem indicated. Reasons for failure of clients to accept available treatment are determined and interpretations of what treatment involves made to the client. Frequently pertinent information is secured regarding treatment cases, which is incorporated in the Division's case records and is of assistance to the supervising ophthalmologist in approving additional medical care.

While in the county this worker confines her entire attention to problems of eye health and contributing factors and acts in an advisory capacity. Before leaving the county she prepares written recommendations for completing medical-social treatment plans on all cases where service is indicated. For demonstration purposes, chiefly, she personally follows through on ten or twelve cases.

The providing of adequate personal follow-up service on medical-eye problem cases cannot be done with a small state staff and the medical social worker's chief task is to educate and stimulate the county social workers to the end that this very important work will be done. However, while in a community, the worker also makes contacts with school officials, health agencies, civic organiza-

* Social Security Board *Bulletin*, September, 1941, p. 43.

tions and community leaders in an effort to encourage and co-ordinate local efforts designed to prevent blindness and conserve eyesight.

For the purpose of focusing interest on the prevention of blindness and effecting co-operation between state agencies whose function requires them to be interested in eye health, the Division promoted the organization of an interdepartmental committee on the prevention of blindness. On this committee are representatives from the State Departments of Health, Public Instruction, Labor, Child Hygiene, and Social Welfare. Periodical meetings are held at which ideas are exchanged, agency functions explained, unmet needs discussed, and future action recommended.

A definite inter-agency co-operation plan has been worked out between the Division and the Kansas Crippled Children's Commission.* The arrangement was indicated inasmuch as the latter agency is legislatively† required to provide medical care for children with congenital cataract. This arrangement provides for referrals between agencies, prevents duplication of service on cases, and promotes more or less of a pooling of the resources of the respective agencies for the benefit of particular cases.

The Division of Services for the Blind realizes that the education of children is the responsibility of educational authorities. Recognizing, however, its responsibility for helping to find children whose eye condition is such that special medical and educational facilities are necessary, the Division is co-operating with boards of education by encouraging nursing organizations and ophthalmologists to assist in finding such children. In one case the Division gave financial assistance in order to insure the continuance of the class in Wichita, established in 1937.

As a result of this co-operation with the boards of education in various communities, it has been found that many children needing the advantages of special education are scattered in communities too small to warrant the establishment of special classes. The Division, therefore, in further co-operation with boards of education, is providing Clear Type books to be loaned by the educational authorities to children recommended by ophthalmologists and teachers. The Division realizes that books are of little value unless

* Chapter 65, Article 5A, General Statutes of Kansas, 1935.

† *Ibid.*

teachers are given assistance in understanding the educational and social needs of partially seeing children. It trusts that its efforts toward demonstrating these needs will result in a well-planned program adequately supervised by the state and local departments of education for all partially seeing children in urban and rural areas.

A number of public information activities have been undertaken by the Division for the purpose of promoting eye health and safety and to interpret the programs being carried on. Lecturers are made available to special groups, program material provided for civic organizations, exhibits held at conventions and meetings, radio time used, and illustrated leaflets regarding care of the eyes given wide distribution.

A description of the program for visually handicapped persons in Kansas would be incomplete without an acknowledgment of the assistance given prior to its initiation and during various stages of its growth by the National Society for the Prevention of Blindness and the American Foundation for the Blind. These organizations, through their competent staffs, have done much to stimulate and give direction to the program's development.

Since the restoration of sight and prevention of blindness programs have been in operation many problems have been confronted, such as the lack of community facilities for general medical care for indigent persons to complement the eye treatment; the fact that many aged clients prefer to exercise their right to apply for Old Age Assistance rather than Aid-to-the-Blind and consequently cannot be served under the treatment programs; and the occasional incomplete reporting by ophthalmologists on eye examinations which necessitates requests being made for additional information. But the greatest problem that has arisen has grown out of the fact that under the procedure for the two programs cases are selected for treatment from those persons receiving eye examinations in connection with applications for Aid-to-the-Blind. The problem is no longer acute because the county departments of social welfare have become more familiar with the intent and procedures of the programs, but there is still somewhat of an incentive for local agencies to use the application for Aid-to-the-Blind as a method of securing an eye examination and possibly treatment for individuals

who are obviously not blind or near blind. The result is that close watch must be kept to see that the rejections for Aid on the basis of the eye examination do not get out of reasonable proportion to the acceptances for any one county since this would possibly indicate that improper referrals were being made for eye examinations.

This problem is a natural outgrowth of providing medical care, when needed, for persons applying for Aid-to-the-Blind. Plans are now under way to work out an alternative method of making treatment available, which it is hoped will prevent abuse of the Aid application and at the same time broaden the scope of the treatment programs.

The Kansas program is still comparatively young, but we optimistically feel that our experience thus far will equip us to build a better program for the future.

Sight Restoration and Patients' Reactions*

Edith E. Gutzeit

A STUDY of fifty-six cases referred to the Prevention of Blindness Department, Dauphin County Branch, Pennsylvania Association for the Blind, by the Conservation of Vision Department, State Council for the Blind.

THE Dauphin County Branch of the Pennsylvania Association for the Blind, a private agency located in Harrisburg, has, since June, 1936, carried on a program for the prevention of unnecessary blindness and the conservation of vision. As one means of furthering this objective, the agency has accepted clients who were referred by the Conservation of Vision Department, State Council for the Blind.† These individuals were felt, by the consulting ophthalmologist of the State Council for the Blind, to be amenable to medical or surgical treatment to help maintain, improve, or restore vision, and they were referred for social case work services which would enable them to follow through on the recommendations made.

Because of the growing interest in the conservation and restoration of vision, an examination of the latter service was made to determine results and what changes might be desirable. The study included 56 persons: 20 men and 36 women. Although their ages ranged from 32 to 88 years, the majority (79 per cent) were over sixty years of age. Most persons appeared to be in good health

* Condensed from thesis, under the title, "Case Work Services to Visually Handicapped Adults," submitted as partial fulfillment of requirements for the Master of Science degree in Social Administration, School of Applied Social Sciences, University of Pittsburgh.

† The State Council for the Blind, created in 1925, is a departmental administrative board within the Department of Welfare of the State of Pennsylvania. It conducts a program "for the prevention of blindness and for improving the condition of the blind" (Act No. 412, May, 1925, p. 1). The Conservation of Vision Department carries on a state-wide program for the prevention of blindness and encourages the co-operation of all agencies engaged in related activity.

and to function as normally intelligent individuals. Three persons were employed: one as a stenographer, one as a housekeeper, and one as helper in a bakery. The income in 38 homes was obtained either entirely from the Department of Public Assistance, as in 12 instances; or supplemented by it, as in 26 instances. Eighteen in the group were supported entirely by private income. Only three of these, however, could afford ophthalmologic care; two others were able to pay the reduced rate for glasses.

While visual acuities at the time of referral ranged from 20/30 to total darkness, the majority—40 persons—had vision of only 20/200 or less in the better eye. Twenty of these persons had sufficiently low vision to be eligible for blind pensions (10/200 or less in the better eye). Recommendations for eye care included: cataract extractions, 32; treatment or periodic supervision, 19; refractions, 3; contact lens, 1; and Wassermann test, 1. Twenty-five persons had had no ophthalmologic care in connection with their present eye condition; 16 were receiving eye care at the time of referral; 11 had previously accepted surgery or treatment, largely for acute pathology; and eye care for 4 was unknown.

Living arrangements were as follows: 42 persons lived with married children or in their own homes; 14 lived alone. Frequently, satisfaction or dissatisfaction experienced in home life appeared to be a factor in the client's consideration of eye care. Clients living with married children felt secure, generally, when they were able to assume responsibility in the home or when they were able to contribute financially toward their support. Clients who had to be entirely dependent on their children, contrary to their wishes, sometimes expressed their insecurity in their attitude toward eye care. To illustrate:

Mrs. Y. had been accepted by her children, with whom she lived for alternating periods, while she was able to contribute toward her support from her blind pension. When a cataract operation in one eye, supplemented by a preliminary correction (sometimes given as a temporary aid in seeing until such time as a final refraction is possible), made her ineligible for a blind pension, one of her children expressed a great deal of hostility against the worker because total responsibility for Mrs. Y.'s maintenance was now placed on the children. It was interesting to note that Mrs. Y. refused to be refracted

even though she knew better vision might be expected. She likewise refused to have the second cataract extracted. It appeared to the worker that she was trying to justify her dependency on the grounds that she saw too poorly to maintain herself.

With two exceptions, clients who lived by themselves appeared to feel a lack of association with persons with whom they might discuss the details of everyday living and share the discomforts of illness. Several tried to meet this need, in part, by contacting the agency frequently to talk with the social worker about their eye care. This gave the worker opportunity to direct the conversation into channels which would aim to ease their fears and make it possible for them to continue eye care. For instance, Mr. N., who had a diagnosis of incipient cataracts, called at the agency after and between clinic visits because he "thought the worker might want to know what was happening next," to his eyes.

The Needs of the Group

The needs of the group as evidenced by the study were fourfold. The first need was to understand the reason for referral and the services which the private agency had to offer. Since all but four persons in the entire group had applied for Blind Pensions, had supplied information necessary to establish eligibility, including eye examinations which had been scheduled by the Blind Pension Fund,* they seemed confused as to the identity and purpose of the private agency of which many had not heard. The second need of the patients was to understand the diagnosis of the eye condition, possibility for treatment, and the resources available. Very few had a clear concept of the causes of their eye troubles; some did not even know the diagnosis. In order to follow recommendations intelligently clients needed to understand, in simple terms, the implications of their trouble and the importance of adhering to treatment prescribed. Clients with glaucoma, for example, wondered why they had to use medication regularly, when to them the drops felt "like water" and did not improve their vision. Persons suffering from syphilis or diabetes had to be helped to realize that care of the general disease was essential. The third need of the clients was

* Administered by the Department of Public Assistance.

to receive understanding, knowledge, and emotional support in order to enable them to deal with their own fears and to initiate or continue eye care. One elderly client was so beset by her problems that, although her symptoms were annoying, eye care became only of secondary importance:

Mrs. B. was living on very diminished savings. She was ineligible for blind pension because her vision exceeded the limit permitted. She did not wish to accept relief because it meant "signing over her house" and yet she could hardly manage. A daughter in another state suggested that she sell the house and come to live with her, but Mrs. B. feared that her son-in-law would not want her. Medication to be used in each eye three times daily was discontinued because Mrs. B. could not put the drops in her eyes because of arthritis in her hands, and she felt that she was imposing on the neighbors.

There seemed to be a need for clients to express in some detail the history of their eye conditions, prevailing symptoms and the hesitancy with which they approached the thought of eye care, especially surgery. Seldom was there enough time for them to talk to the busy oculists in the clinics, whose remarks were often misunderstood. Moreover, even when clients understood, there were frequently needed the knowledge and skill of the social worker to help them deal with and overcome certain social and emotional factors which interfered with the carrying out of the oculist's recommendations. Finally, the clients needed to have leisure time activities adapted to their present visual condition, and related to their former and present interests, pending completion of eye care. It was felt that such activity would have the values of occupying the time left free by inability to pursue accustomed activities which required eyesight; of giving the client a feeling of usefulness and creating an opportunity for approbation of his efforts by others; and of helping him spend his time enjoyably and preparing him for blindness in the event that medical care should prove unsuccessful by giving him the confidence of being able to do things without the use of sight.

An attempt was made to fill all but the last need, for which there are, as yet, insufficient resources within the agency. Interpretation was made of the motive for referral and information was given concerning the services which the agency was set up to offer. The

worker aimed to develop a relationship with the client which would release him sufficiently to discuss with her his conception of his eye condition, to express his feelings toward the recommendations made and his reactions to accepting the eye care which was available to him. In interviewing, the worker listened to the client, followed his words and feelings and tried, gradually, to correlate her helping process with them. In some instances immediate plans for medical care could be discussed; in others, especially when surgery had been advised, no attempt was made to hasten a decision until the client had time to think the matter through. Several patients were unable to accept their diagnoses. In such cases it was felt wise to go along with them until they were prepared to do so. To illustrate:

Mr. N., an elderly unmarried man, rejected the diagnosis of incipient cataracts because he seemed to be afraid of the threat it implied. Repeatedly he insisted that the trouble did not lie with his eyes, but with the oculist at the clinic who had refracted him "in a hurry." Disturbances in his vision were accounted for by the fact that his glasses "were no good." Efforts made to discuss his diagnosis with him and to allay his fear were unsuccessful. A further attempt to show interest was made by listening to his complaints and by arranging to meet him at the clinic. On the appointed day, Mr. N.'s eyes were examined by Dr. A., who had just come on the clinic staff. Dr. A. impressed Mr. N. favorably, because he let him talk freely and because, according to Mr. N., he had taken "special pains" to improve his vision with glasses. Mr. N. "knew" he would see better. Glasses, including a new frame required at this time, were supplied by the agency. This appeared to give Mr. N. further satisfaction. Although he admitted his diagnosis for the first time, since it had been confirmed by Dr. A., he was not quite ready to accept it. He told the worker that "they tell me I have beginning cataracts, but I'll never let them cut *my* eyes." He nevertheless followed Dr. A.'s advice and reported to the clinic every two months for observation, and following each visit he reported to the worker in detail what had happened. For a time he suffered from diplopia, or double vision. With Mr. N.'s knowledge, this was reported to Dr. A. previous to Mr. N.'s next clinic visit. When the worker saw him several weeks later, Mr. N. said, "Dr. A. said my eyes are in pretty good condition. If they get worse, maybe they'll have to operate, but I won't let them do it until my sight is completely gone."

Clients were encouraged to contact the agency any time they felt that the worker could be of help. Information was given concerning resources for medical care and, when necessary, assistance was given in obtaining them. Effort was made to meet the clients' emotional needs, namely, need for recognition and need for emotional support, often described as "standing by," throughout the period of medical care. In one case, service was rendered entirely by consultation with the client's husband:

Mr. W. came to the agency to talk about his wife's eye care. The elderly couple were supported by Old Age Assistance, although frequently Mr. W. managed to find light work which enabled him to meet their expenses. Mrs. W.'s diagnosis, senile cataracts, had been made at the office of Dr. S., whom she had consulted as a private patient for a number of years. Mr. W.'s concern centered about his wife's diagnosis, need for treatment, and lack of money required for care. His first concern appeared to center around the diagnosis, treatment, and prognosis; he asked questions about cataracts and cataract operations, in general. Mr. W. related the information Dr. S. had given him but he said he had not "dared to take Dr. S.'s time" to ask all the general questions he had in mind. Discussion concerning operation, hospitalization and post-operative eye care was initiated in this interview, but was continued in a later interview as Mrs. W.'s eye care progressed. Mr. W. was referred to Dr. S. to discuss his inability to meet probable expenses because Mrs. W. was still his patient and he was apparently showing considerable interest in her. Mr. W. admitted that oculists sometimes took care of patients in poor circumstances, but his pride made it difficult to approach Dr. S. He nevertheless decided on this plan, because he knew that Mrs. W. had faith in Dr. S. Worker saw Mr. W. at various times. She learned that Dr. S. had given his services free and that he had arranged free hospital care for Mrs. W. The last time Mr. W. called, he asked the agency's assistance in buying Mrs. W.'s glasses as he felt he could not afford to pay the price Dr. S. might charge. Again it was suggested that he discuss the matter with the doctor, although the worker made it plain that if Dr. S. were willing, the agency might consider this request. It was later learned that Dr. S. had charged a very reasonable price and had permitted Mr. W., who was then working, to pay in installments.

Results of Medical and Social Treatment

A survey of the patients showed that 36 persons (64 per cent) had accepted medical care; 20 did not. An analysis of the findings indicated the following facts:

<i>Accepted Eye Care</i>	36 persons
Improvement in vision	19
Vision maintained	7
Vision restored	7
Vision increased	5
Lack of Improvement in Vision	17
Eye care not completed	8
Decreased vision	6
Eye care contraindicated	3
<i>Did Not Accept Eye Care</i>	20 persons
Total	56

Twenty-two of the above 36 had ophthalmologic care for treatment and observation of conditions, including fundus pathology, glaucoma, and incipient cataracts. Ten of the 36 persons had cataract extractions. Of the remaining four, two persons were refracted; one person was fitted with a contact lens; and one had a preliminary cataract operation. The vision of 19 persons (34 per cent) was found to have been maintained, improved, or restored. This figure of 19 is a conservative statement, for six other patients whose treatment was incomplete at the close of the survey period were counted in the "No improvement" group discussed below. Seven of the 19 persons were able to maintain their vision; another 7, following cataract extractions and the fitting of proper glasses, had vision restored: of these, 5 recovered close to normal vision, two had 20/70 and 20/200 vision, respectively, the latter with a preliminary correction. Five of the 19 persons had improved vision: of these two, 20/30 and 20/70 vision, with correction, respectively, following treatment for pathology; two, 20/100 and result unknown, respectively, following refraction; and one, 20/30 with a contact lens.

Seventeen persons, 30 per cent of the 56 persons referred, had no improvement in vision at the time the study ended. Eye care for six of these persons had not yet been completed, as previously

stated. Six others had decreased vision for the following reasons: unsuccessful cataract operations, three; slowly maturing cataracts, two; and degenerative eye disease, one. Eye care to improve or restore vision was contraindicated for three persons following study by ophthalmologists. Two other persons did not benefit by eye care: one could not tolerate her new correction; the other died before eye care was completed (the last two are included in the table under the heading "Eye Care Not Completed").

Twenty persons in the group (36 per cent) did not accept eye care. The following were contributing factors in the various situations: advanced age and poor health, apparent acceptance of blindness, seeming indifference because the remaining vision had appeared constant for several years, and useful vision in the better eye.

Improvement or maintenance in vision made it possible for 9 persons to continue, accept, or assume *completely*, responsibilities in their homes. In some cases the influence of restored vision was as great on other members of the family as on the client, restoring a normal balance within the home.

To illustrate:

Mrs. G.'s two children, of adolescent age, had had to assume responsibility for managing the household because their widowed mother had lost her sight due to maturing cataracts. When Mrs. G.'s vision was restored, she was able to resume her rightful place in the home and her children were able to share, more completely, the normal experiences of others in their age group.

Eight persons helped by ophthalmologic care were able to pursue or to continue the simple activities which their routine of living required, with a reasonable amount of independence. Three others were able to continue employment, and one person was finding improved vision to be increased stimulation to seek employment. Eight of the number who had been receiving blind pensions became ineligible for this aid because of increased vision. It is possible to estimate a saving of \$360 annually to the commonwealth for each of these persons, but it is impossible to estimate the general human value brought about by the restored vision.

Conclusion

It is difficult to estimate accurately the value of case work services rendered. Work had not been, as yet, completed on all of the cases referred. There is, moreover, a likelihood that a few of the more resourceful persons in the study who accepted medical care following the worker's efforts might have done so eventually of their own accord. On the whole, however, it appeared that most persons needed to express their concern about their eye conditions, to receive interpretations of their physical difficulties, and to have information concerning resources. Likewise, most persons appeared to find it more possible to accept medical care when they knew that the agency would stand by.

Note and Comment

Summer Courses for Training in Sight-Saving Class Work.—Four colleges and universities, in co-operation with the National Society for the Prevention of Blindness, are offering courses for the training of teachers and supervisors of sight-saving classes this summer (1942). The institutions and the dates of these courses are as follows:

Peabody College for Teachers, Nashville, Tennessee
June 22–August 1.

Wayne University, Detroit, Michigan
June 29–August 7.

State Teachers College, Buffalo, New York
June 29–August 7.

Teachers College, Columbia University, New York, N. Y.
July 6–August 14.

These summer courses will be of interest to teachers preparing to take charge of special classes for the education of children with seriously defective vision, and the courses will be helpful for nurses and social workers whose responsibility it is to aid in conserving the sight of the children under their care.

Recent legislation regarding the education of handicapped children has stressed the fact that children in rural communities, as well as those in cities, should be given special educational opportunities. Since few states have special supervisors for the partially seeing, it is advisable for supervisors of elementary education—state, city and county—to take advantage of the opportunities offered by these courses to prepare themselves to give the necessary aid to teachers in communities too small to warrant the establishment of sight-saving classes.

Details regarding the courses may be obtained from the respective colleges or from the National Society for the Prevention of Blindness, 1790 Broadway, New York City.

Society's Program for the National Conference of Social Work.—The National Society for the Prevention of Blindness will par-

ticipate in the National Conference of Social Work this year by maintaining an exhibit booth for conferences and conducting four sessions during the Conference. Two of the sessions will be conducted jointly with the American Association of Medical Social Workers on the subject of "Consultation—Its Meaning, Processes and Relationship," and one joint session will be held with Section One—Social Case Work, Group Meeting 3, under the title of "The Importance of the School Program in Case Work with Exceptional Children." A final meeting will deal with the topic, "The Public Welfare Agency's Opportunity to Conserve Sight."

Fourth of July Fireworks Injuries.—Celebration of the Fourth of July in 1941 resulted in 2,039 fireworks injuries, according to the "Fifth Annual Summary of Fourth of July Injuries Due to Fireworks and Explosives," published by the *Journal of the American Medical Association*. These included the loss of vision of one or both eyes in 9 individuals, and eye injuries to 104. These figures represent a substantial reduction from the record of 1940, when 214 serious eye accidents occurred, 15 of which resulted in blindness in one or both eyes.

The *Journal* reports a striking improvement between 1940 and 1941 in the following states: Alabama, Arizona, Kansas, Kentucky, Maine, Nebraska, New Jersey and Oklahoma. The improvement in Arizona is probably due to a control bill in 1941; in Kentucky a regulatory law is in effect; Maryland adopted a new law this year; the marked reduction in accidents in New Jersey may be due to an embargo placed on all shipments of fireworks into the state and the effectiveness with which the new law in its neighboring state, New York, was enforced. From the records available, the states which need adequate state law enforcement most are Ohio, Illinois, Massachusetts and California. Of these, Ohio and Illinois have laws which are to become effective for the Fourth of July, 1942.

Commenting on the findings, the *Journal* says: "As has been pointed out repeatedly in these reports, the reduction of fireworks injuries is dependent not only on adequate state legislation but on enforcement as well. . . . In the five years since these reviews have been resumed, the total number of unnecessary accidents of this nature has declined from 7,205 in 1937 to 2,039 in 1941. This

source of death and disfigurement can be still further reduced, especially by prompt enactment and enforcement of suitable legislation in those states, such as Massachusetts and Rhode Island, which do not have effective laws. Ohio and Illinois, if adequate enforcement is attained next year, should show considerable improvement. In view of the experience of the last two years the California legislation should receive prompt attention with a view to making it serve the purposes for which it was presumably intended."

Vision in Our National War Effort.—Under this title a one-day institute was held in the Pennsylvania State College of Optometry in Philadelphia, Pennsylvania, January 22, 1942, under the joint auspices of the College and the Pennsylvania Optometric Association. Among the topics presented were: "Safety Measures and Eye Health Service," by Joseph A. Haller, Director of the Department of Safety, Maryland State Industrial Accident Commission; "Ophthalmologic and Optometric Collaboration in the National War Effort," by Dr. Ronald C. Moore, of Philadelphia; "The National Government and Eye Health Care," by William T. Cameron, Chief Safety Adviser, National Committee for the Conservation of Manpower in Defense Industries; and "Vision in Our Armed Forces—The Navy," by Dr. C. A. Swanson, Bureau of Medicine and Surgery, United States Navy. It is interesting to note figures quoted by Dr. Swanson to the effect that, among 98,000 volunteers for the Navy recently, it was found necessary to reject 58,000 because of physical defects, of which 8,679 were for eye defects.

In concluding the institute, Dr. H. Ward Ewalt, Jr., President of the Pennsylvania Optometric Association, made the point that many older workers are now being used in industry and that men are working longer hours, thus increasing the possibilities for visual fatigue, which is such an important factor in industrial accidents. He also pointed out that the majority of workers do not have pre-employment eye examinations or any kind of periodic examinations. He spoke of the need for more eye specialists in the country, particularly because of the growing need for them in industry; he called attention to the fact that 90 per cent of American workers are in plants that do not have any safety engineers.

Vitamin A and Color Blindness.—By taking more than four times the amount of vitamin A recommended as the daily requirement of an adequate diet, a group of eight color-blind college students made an average of only half as many errors in seeing colors after twelve days of treatment, reported Dr. Robert D. Loken, of the psychology department of the University of California at Los Angeles. The color blindness of the students given the vitamin A treatment ranged from a slight red-green confusion to large error scores over a wide range of color, when tested by a revised form of the Nela test of color vision. Some made as many as 21 errors out of a possible 24.

Dr. Loken points out, however, that vitamin A cannot yet be considered a cure for color blindness, that his is only a preliminary experiment and many other factors must be investigated. "There is no implication," he says, "that all or any cases now unfit for industrial purposes because of color-vision deficiency might benefit sufficiently from vitamin dosage to bring them up to the 'normal' level of color blindness."

Eyes Supplied by Dead for Living Blind.—The Dawn Society has recently been formed in California by forty members, each of whom has signed a written, legally binding pledge to give his eyes to the blind immediately after death. In recent years doctors have been successful in grafting corneal tissue from healthy eyes to eyes of those blind because of corneal damage, but they have been hampered by lack of healthy tissue for the operation. Under this plan both eyes of the members will be removed within six hours after death and stored in a light saline solution under refrigeration. Although the tissue will respond to grafting up to two weeks after removal from the donor, it is expected that it will not be necessary to store the eyes for more than a few hours or days—so great will be the demand. Blind persons may apply to their own physicians for the sight-restoring operation, and names of applicants will be listed and served in order of their receipt by the Dawn Society. The "gift eyes" may be sent to other cities and may serve various people.

Control of Epidemic Virus Conjunctivitis.—The prevention of epidemic virus conjunctivitis, an eye disease which recently has

been sweeping certain sections of the West Coast, "as of other infections concerning the eye, is definitely related to the prevention of contamination by soiled hands and linens," *The Journal of the American Medical Association* for February 7 advises in an editorial, adding that, "In industrial plants, medical control of the industrial worker is necessary." *The Journal* explains that although the cause of the disease has not yet been determined, all observers believe that it is a specific virus. The editorial says:

"During the summer of 1941, according to Holmes, a rapidly spreading type of acute conjunctivitis [inflammation of the membrane lining the eyelids] raged in Oahu, Hawaii. At first, patients and doctors called it 'pink eye.' However, when repeated cultures and smears were made from conjunctival scrapings and secretions from more than 50 cases, investigators found it impossible to determine any offending organism. In October a considerable number of cases began to appear in California, and the peak of the outbreak was reached in December. At that time authorities noted that 2 per cent of workers in some ship-building plants were affected, but the percentage of those affected was higher in special groups, such as welders, whose eyes are notoriously subjected to the trauma of light.

"After an incubation period of from two to five days the patients experience pain, excessive lacrimation [secretion of tears] and the feeling that some granular dusty body or some other foreign substance is in the eye. There is extensive edema [swelling], but a purulent discharge is seldom seen. The upper lids are usually reddened and swollen, and blepharospasm [spasm of the eyelid] is encountered. . . .

"In most instances the disease seemed to be self-limited. It pursues a leisurely clinical course, in the absence of complications, lasting from two to three weeks. When [complications] developed, the eyes remained irritated for from four to six weeks or longer.

"Thus far attempts to determine the cause of this conjunctivitis have been unavailing, but practically all the observers believe that a specific virus is responsible. . . . Studies are being continued in several laboratories with a view to isolating a virus or developing more information concerning the nature of the infection."

Book Review

SCHOOL HEALTH SERVICES. W. Frank Walker and Caroline R. Randolph. New York: Commonwealth Fund, 1941. 162 p. and appendices.

As 20 per cent of the population of the United States are school children, and medical inspection has steadily grown in volume since its introduction in the schools of Boston in 1894, this service has definite significance in relation to the health program of the nation.

In *School Health Services* we have at last a fair picture of successes and failures, with definite suggestions of further steps to be taken if the funds expended on school medical and nursing services are to bring maximum results.

The book is based on a study conducted in six counties of Tennessee, where the school health records of 58,000 children were available for a period of six years. A "large part of the study was directed to the consideration of medical findings at examinations, the defects corrected, the effect of a parent at the examination, and the effect of medical and nursing supervision before school entrance."

Vision findings will be of special interest to readers of the SIGHT-SAVING REVIEW. "Of the 56,160 children between the ages of six and sixteen years who had their first examination between 1930 and 1936, 54,487 had their vision tested. . . . The proportion of white and colored children at the time of the first examination shows for the group a rather gradual increase in the incidence of visual defects, from a little more than 2 per cent in the six-year-old children to practically 7 per cent at age sixteen. The incidence of defects in the colored group apparently is about the same in the lower ages as among the white, but is appreciably lower at the upper age level. . . . The attack rate of visual defects in relation to age is sharply at variance with that of other defects, being essentially constant at 2.5 per cent to 3 per cent every two years during school life, or an annual attack rate of 1.25 to 1.5 per cent. . . ." Though the study indicates that "approximately 10.5 per cent of all children will develop visual defects

by the age of thirteen years, 46.0 per cent" of these same children will show normal vision at a subsequent examination. "Under the conditions of rural life in the six counties studied, 13.1 per cent of white children and 6.3 per cent of colored children secured corrections of visual defects." The value of parents being present at the examinations, visits of public health nurses, and a second examination of vision is demonstrated.

The report does not attempt to furnish all the answers, but rather indicates that, as health examinations of school children require a large proportion of county public health officers' attention, the departments conducting school services must continue to analyze their programs to determine, if possible, such questions as "What are the reasons for the change in vision rating from first to second examinations? What part of this change is due to a difference in visual acuity and what part is associated with age?"

In an excellent closing chapter entitled "What Should the School Health Program Be," the health education phases are discussed. "As with other subjects, the major responsibility for teaching the scientific facts of health and disease, the importance of sound personal, family, and community health, and the ways to achieve it, rest with the schools. However, the success of the general public health program depends so greatly upon the individual and community understanding, acceptance, and the use of this knowledge that the health department has a fundamental interest in this phase of school service. . . . The role of the health department personnel in this field should be that of the practical demonstrator. The physical examination at entrance may be the child's first experience with a health examination." The report leaves the reader in no doubt as to the opportunity for health promotion inherent in the process of examining school children.

The book is thoroughly documented, with statistics clearly presented. The lay-out and type are examples of good craftsmanship. Health workers, concerned with any or all phases of promoting and maintaining the health of the school-age child, will find enlightenment in this much needed study designed to answer the question, "How effective are school health services?"

—SALLY LUCAS JEAN

Briefer Comments

MANUAL OF THE DISEASES OF THE EYE. Charles H. May, M.D., with the assistance of Charles A. Perera, M.D. Baltimore: William Wood & Co., 1941. 519 p.

This seventeenth edition does not differ in size or scope from previous editions. Occasional passages have been rewritten for increased clarity rather than for any appreciable change in content; but wherever they have appeared, new developments are described, as in the case of a third operative technique for retinal detachment. Two new colored plates have been added: one presenting one each of the series of Stilling's and of Ishihara's Pseudo-Isochromatic Plates for Testing Color Perception; the other showing the Koch-Weeks bacillus and the Morax-Axenfeld diplobacillus.

An appendix has been included giving the ocular requirements of the Army, Navy, Marine and Air Services of the United States Army.

HOW TO MAKE TYPE READABLE. Donald G. Paterson and Miles A. Tinker. New York: Harper and Brothers, 1940. 209 p.

This book, which sets forth scientific factors concerning the legibility of type, will be of interest to typographers, printers, advertisers, and all those concerned with the preparation of reading material. Kinds and size of type, width of line and its relation to size of type, leading and its relation to line width and type size, spatial arrangements of the printed page, black print versus white print, and printing surfaces and arrangements are among the topics discussed. To study and measure these standards, the authors gave reading tests to more than 33,000 students in colleges and in secondary schools. One of their most interesting observations was the frequent contradiction between the "facts," on the one hand, and common sense notions, printing practice and widespread theories about "good" typography, on the other.

The book is well arranged, and contains numerous figures and tables, as well as an extensive selected bibliography.

AUDIO-VISUAL AIDS TO INSTRUCTION. Harry M. McKown and Alvin B. Roberts. New York: McGraw-Hill Book Company, 1940. 473 p.

This is a useful compendium of information dealing with all types of audio-visual aids, such as motion pictures, radio, exhibits, lantern slides, etc. It has particularly valuable reference lists at the end of each chapter. Also helpful are the lists of sources—governmental, scientific and commercial—for such things as photographs, slides, charts, radio recordings and exhibit materials.

SAFETY IN THE WORLD OF TODAY. Herbert J. Stack, Don C. Seaton, Florence S. Hyde. Chicago: Beckley-Cardy Co., 1941. 372 p.

Prepared especially for pupils in the seventh to ninth grades, this textbook makes a valuable contribution to safety education. It is organized to permit effective use, either through integration with other subjects or when safety is taught as a separate subject. Of especial interest are the chapters on "Safety for the Worker" and "Organizing the School for Safety." A list of suggested activities that are not only practical but would be of interest to this age group is presented at the end of each chapter. The book is well illustrated and the material is related to the everyday experiences of boys and girls.

Contributors to This Issue

Harry S. Gradle, M.D., of Chicago, Illinois, is Secretary of the Commission on Rehabilitation appointed under the Office of Civilian Defense.

Joseph A. Haller is the Director of Safety of the State Industrial Commission, Baltimore, Maryland.

Matthew Luckiesh is the Director of the Lighting Research Laboratory of the General Electric Company, Nela Park, Cleveland, Ohio, and his collaborator, **Frank K. Moss**, is Research Engineer at the Nela Park Laboratories.

Cora L. Shaw, R.N., Instructor of Nursing at the Institute of Ophthalmology of Presbyterian Hospital, New York City, is a member of the Society's nursing advisory committee.

The chairman of the Society's committee on glaucoma, **Mark J. Schoenberg, M.D.**, needs no introduction to REVIEW readers.

Garrett L. Sullivan, M.D., is on the staff of the Massachusetts Eye and Ear Infirmary in Boston.

Now supervisor of the division of Services for the Blind in the Kansas State Department of Social Welfare, Topeka, **Harry E. Hayes** was formerly supervisor for the department of the blind in a private family welfare agency.

Edith E. Gutzeit is affiliated with the Prevention of Blindness Department of the Pennsylvania Association for the Blind, Dauphin County Branch, at Harrisburg.

Book reviewer: **Sally Lucas Jean**, eminent health education expert, was recently executive secretary of the health section of the World Federation of Education Associations, at the New York City office.

Mobilization of State Forces For Prevention of Blindness

A Symposium

Supplement

The SIGHT-SAVING REVIEW, Vol. XII, No. 1, March, 1942

National Society for the
Prevention of Blindness, Inc.
1790 Broadway, New York, N. Y.

Publication 378

Price 35 cents

Table of Contents

	PAGE
MOBILIZATION OF STATE FORCES FOR PREVENTION OF BLIND- NESS, Robert T. Lansdale, Chairman.....	5
STATE AUTHORIZATIONS FOR A PREVENTION OF BLINDNESS PROGRAM, John W. McConnell.....	7
PATTERNS IN PRACTICE—A PANEL DISCUSSION. Leader: Mr. Lansdale. Discussants:	
Dr. C. E. Rice.....	39
Dr. John Y. Battenfield.....	41
Ruth B. McCoy.....	42
Harry E. Hayes.....	43
Louise G. Sexton.....	45
Mrs. Pearl Wanamaker.....	48
Philip Williams.....	49
W. T. Cameron.....	51
Evelyn M. Carpenter.....	53
Audrey M. Hayden.....	55
Robert T. Lansdale.....	58

Copyright, 1942, by the National Society for the Prevention of Blindness, Inc.

Mobilization of State Forces for Prevention of Blindness^{*}

Presiding: ROBERT T. LANSDALE

Director, Institute of Welfare Research, Community Service Society, New York, N. Y.

CHAIRMAN LANSDALE: Before we start the program this morning, I want to explain our procedure. My job is that of ringmaster. As a matter of fact, I think there is some deep plot here which is responsible for my being on the platform at all. Several old friends of mine from whom I have not heard for years have written me and have rather subtly suggested they thought it was strange that I should be on a program on this subject. I think it is an attempt to educate me. So I want you to know at the outset that my job is one of steering the program, not of furnishing any expert testimony.

We are going to divide the meeting into two parts this morning. We are going to hear first from Mr. McConnell on the legislative aspects of the program. We shall give you a chance to ask questions of Mr. McConnell, then we shall adjourn briefly to give you a chance to stretch. After that we are going to trot the panel up and we are going into the second phase, which will be a discussion of what happens after the legislation is on the statute books.

We shall hear first from official agencies what they are actually doing under some of the statutes which Mr. McConnell has discussed. Then we shall hear from several representatives of the voluntary agency on what the job of the private agency in the field of prevention of blindness is. You people come right into the panel session, too. The only reason a lot of you are not up here is that we can have only a limited number in the panel. You are all a part of the meeting and we expect you to participate.

Our first speaker and our only formal speaker is Mr. John W. McConnell—and he prefers to be called “Mister”—Assistant Professor of Sociology, Department of Political Science and Sociology, New York University. Mr. McConnell, I am told, is a recent re-

^{*} Presented at the Annual Conference of the National Society for the Prevention of Blindness, New York, N. Y., December 4, 1941.

cruit or volunteer in the field of prevention of blindness, but his interest in the subject goes back to his own undergraduate days in the American University in Egypt. Mr. McConnell himself has, as most of you know, been carrying on considerable research, particularly in legislative and administrative phases of the official programs for the prevention of blindness. He is opening our program this morning with a discussion of a nation-wide picture of where we stand in our legislation in this field at the present time.

State Authorizations for a Prevention of Blindness Program

John W. McConnell

Assistant Professor of Sociology, Department of Political Science and Sociology,
New York University

UNTIL very recently in our nation's history the relation of government to personal and social maladjustment was primarily negative, that is, public authority was called upon to act only as a last resort. For example, the government was empowered to deal with lawbreakers and delinquents only after anti-social acts had been committed; or, in social welfare, not so long ago, public action was possible in most communities only when a person was utterly destitute. The growing conviction that many of our personal and social difficulties are preventable, and the rather logical observation that it is foolish to wait until the horse is stolen before locking the stable door, have gradually pushed public policy to a point where positive preventive action is expected. To a large extent the federal and state governments in the last decade have accepted this view of the governmental function.

The change in government policy from patch-up to prevention is a major advance. There is still the need to adapt the structure of government itself to the demands of the new policy. One does not expect bureaus or agencies designed to assist the maladjusted to do a great deal in removing the specific causes of the maladjustment. Machinery designed for repairing either things or people is not likely to be efficient in prevention of disorders.

To prevent personal and social maladjustment it is necessary to attack these problems at their source. But anyone who has worked in the field of public health or social welfare knows that the causes of social and personal problems are legion. Consequently no single approach is adequate. The attack must come from all sides; a variety of weapons must be used. In the light of these facts the need for flexible, co-ordinated governmental activity becomes more obvious and more pressing than ever before. New governmental

machinery must be devised; new authorizations of power are necessary.

However, in securing the new authorizations we must realize that the process of change in our government is not the destructive revolutionary type whereby old forms are ruthlessly torn down, and new institutions forcefully introduced; a more moderate program of change is wisely followed. Change of the slower type requires that we begin where we are with the government agencies and government structures now in existence, and by easy stages adapt them to the needs of the policy of prevention.

These introductory remarks have been very general, but they have direct bearing upon the remaining discussion. From the early part of the nineteenth century until recently the major concern of the state with regard to blindness has been the support and education of persons who were blind. Later, as specific causes of blindness became known, attempts have been made to control these causes and thus prevent blindness. Acting on their own initiative or by specific legislative authorization and with little co-ordination of their activity, departments of health, education, labor and industry, public welfare, and commissions for the blind experimented with programs for the prevention of blindness. Many of the activities carried on as prevention should never have been classified under that title. Yet with all the possible criticisms, and there are many, some states have developed creditable prevention programs. It is time, however, that the increased knowledge of causes, the improved techniques of research and education, and the new faith in prevention should be put to more efficient use through co-ordinated activity. To secure this desirable result new or greatly modified governmental structure may be required, and new legislation, allowing more elbow-room, found necessary.

The purpose of this paper is to bring together and describe the laws already in existence which directly concern or may be applied to the prevention of blindness. In order not to burden you with an excess of statistical or legal data much of the material of that character has been incorporated into tables and summaries which follow this paper. Since the original presentation of this paper the tables and summaries have been carefully checked through correspondence with the appropriate heads of departments in all of the

48 states and the District of Columbia, who were asked to check the original summary of laws, making additions or corrections and citing laws supporting suggested changes. The interest shown and care taken with corrections were indeed appreciated. The tables include a tabulation of all states now having specific legislation related to the prevention of blindness, and a document embodying actual laws which typify the laws generally in operation.

For those who are attempting to map a new course in the prevention of blindness there is no knowledge more important than the knowledge of the terrain to be crossed and the obstacles to be dealt with. Adequate provision for the discovery of eye defects and the facts relative to the causes of blindness is a prerequisite to an effective prevention of blindness program. Unless one knows these facts it is literally a case of "the blind leading the blind."

Since vision may become defective at any period in life, it is necessary to have some means of finding cases of defective vision among people of all ages. Reporting of ophthalmia neonatorum is required in all states, and vision testing of school children is now part of the prevention legislation in 42 states. Since the introduction of the aid-to-the-needy-blind programs in most states through the Social Security Act, serious eye defects come to the attention of the public authorities. Compulsory reporting of all cases of congenital eye defects in newborn infants, and all cases of industrial injuries, also spreads the net farther and narrows the mesh so that fewer cases of eye troubles escape notice. There are still great gaps in the case finding provisions of even the most advanced states. Authorizations for examination of preschool children and post-school adults seem to be necessary, but no state has solved this problem. However, authorizations for such examinations are frequently found in general discretionary powers granted to administrators. For example, in 31 states juvenile court judges, as part of their fact-finding powers, can require health officials to conduct physical examinations of all delinquent or dependent young persons appearing before the court, and in issuing work permits, education officials may require physical examinations. Hence, a great deal can be done by presenting pertinent material to officials in charge of such programs.

Some state laws stipulate that all such examinations should be

made wherever possible by a licensed physician specializing in eye care or that vision testing be done by persons with some training in the proper technique. The desirability of such provision needs no proof. Generally speaking, most of the laws authorizing examinations fail in not requiring the examinations to be followed by some means of providing treatment or of requiring that it be obtained. Since many public bodies are engaged in case finding and fact finding, there is need to authorize some one agency to collect and classify such data, keeping an accurate register of the blind and of the visually handicapped who are not blind, and information as to the causes of blindness. Although responsibility for registration of the blind and studies of causes of blindness is delegated to Commissions for the Blind or Departments of Social Welfare, few state departments are equipped to do an adequate job. Most state laws provide for the gathering of statistics and the study of causes of dependency. This power might be utilized for studies of defective vision.

Our knowledge of the causes of blindness is still fragmentary, yet of one thing we can be certain: a large proportion of all blindness is caused by communicable diseases and accidents. The prevention of blindness looks forward to the control and the eventual elimination of these causes, but legal authorization for positive action is in many instances not available. Thirty-seven states distribute free (through the Department of Health), and 47 require the use of, a prophylactic in the eyes of infants to prevent ophthalmia neonatorum. To check on compliance with this law attendants at birth are obliged to report the use of, or failure to use, the prophylactic on the birth certificate. It is important that public health authorities be able to investigate cases and take such measures for treatment as seem necessary. This is especially important with regard to services for families financially unable to provide care.

The nation is growing more conscious of the need to control venereal disease, especially syphilis. This has direct bearing upon the prevention of blindness, since it is estimated that 13 per cent of all blindness is traceable to this cause. Recent educational programs and the extension of diagnostic and treatment services made possible through the Federal Venereal Disease Control Act have pushed ahead the control of these diseases among the general public

Thirty-three states have compulsory blood tests for syphilis prior to marriage, while 25 require prenatal tests for this disease. All but two states also *allow* for compulsory testing of any person suspected of having a syphilitic infection, and for compulsory examination of all persons entering a correctional institution. The final analysis of blood samples is such an important aspect of the testing that states requiring tests usually provide their own or approved laboratories. Treatment for communicable cases can be made compulsory only where free or subsidized treatment clinics and free drugs are available to those infected. Without them cost would be prohibitive and the enforcement of treatment almost impossible.

Control of other communicable diseases, as one would expect, rests primarily with the units of local government, but increasingly state laws require that all cases of communicable disease be reported to the state department of health, and ample discretionary power is granted to the state officials to investigate cases, require quarantine, and to take other special precautionary measures as they see fit. Too often local authorities withhold information on the prevalence of communicable disease because of some economic or social interest, such as the tourist trade, or because of fear of loss of local prestige. This can be prevented only by adequate state laws.

The frequency of industrial and non-industrial accidents has caused all states to take some measures to prevent accidents and their harmful effects. One of the most progressive pieces of legislation is the legal requirement that eye safety equipment be provided in specified occupations as found in the National Safety Code. There are other more general accident laws which a prevention of blindness program might find of value. In 24 states there is a statutory requirement that employers must furnish employment that is reasonably safe. In most states there are common law provisions which might be assumed to include this requirement. These laws are, of course, subject to interpretation by administrators and courts. But it is just at this point that educational work can be most effective. The education of a high administrator may bring to a prevention program the full weight of the administrator's discretionary power. He may be already quite willing to help, but he

may need to be shown how. Rules and regulations concerning conditions of employment are meaningless, however, unless adequate and forceful inspection is available to support the law. Feeble enforcement, not lack of laws, is frequently the cause of an unsafe shop or factory.

Outside of industry also laws have been used to promote safe living. Thirty-nine states now require that safety glass be used in all public conveyances; usually the requirement includes all passenger vehicles as well. Fireworks are now banned in 21 states except for use on public occasions, when a permit may be issued to adults, and in 41 states the use of firearms and dangerous toys by minors is controlled either by licensing, restriction on use, or actual prohibition.

Another point at which adequate state legislation may promote eye safety is by requiring the proper labelling, and restricting the sale, of drugs and cosmetics which may have a destructive effect upon eye tissue. Federal legislation has gone a long way in controlling the distribution and sale of drugs and cosmetics in interstate commerce, but state laws are necessary to regulate the manufacture of these products, their intrastate shipment and their ultimate sale to the consumer. Good legislation will require proper warnings on all substances where the actual effect may be harmful. In 43 states the sale of harmful drugs and cosmetics is prohibited or controlled, and 37 states make compulsory the labelling of harmful drugs and cosmetics. Chemicals, such as explosives or acids, will be required to carry warnings, directions for use, and a statement of antidotes. This latter legislation exists now in 34 states.

There are numerous measures of a more general nature aiding in the prevention of blindness which one finds in progressive states. Minimum lighting standards are established for schools in 17 states, in factories and public buildings in 24 states. Control is also made possible by giving a state sanitary and health engineer or state superintendent of education veto power over plans for these structures unless they conform to the established standards.

All states have established rules for the education and licensing of private practitioners treating the eyes. When people become eye conscious, their first move, frequently, is to consult the nearest person who advertises examination and treatment of the eyes or

fitting of eye appliances. Obviously it is necessary for the state to assure its inhabitants that when citizens appear for examination in a public agency, or visit a practitioner, they are dealing with men qualified to do their work. Laws in 29 states are quite specific in their restrictions upon advertising of services for the eyes, upon the training of persons who work on and sell eye appliances, and upon the description of unethical practices. In addition to this type of control, laws concerning aid-to-the-needy-blind and crippled children's services require that eye examinations be conducted by ophthalmologists who will likewise prescribe the necessary medical or surgical care. Consulting or supervising ophthalmologists are now provided in 13 states in laws authorizing state services for the blind and those with defective vision.

When all measures for prevention have failed, and one faces the need of "doing something" about his eyes, what state facilities are at his disposal? One of the most important authorizations of service is found in the aid-to-the-needy-blind program by which those whose vision may be restored by medical or surgical care will be offered the necessary services. They may be provided through the medical school of the state university or by private ophthalmologists. Ten states make the grant of financial aid contingent upon the willingness of the applicant to accept medical care if there is a chance of restoring sight. The wisdom of such a requirement is questionable and enlightened authorities seem to prefer the permissive rather than the mandatory law. The specific financial arrangements in regard to medical care under the aid-to-the-needy-blind program vary greatly from state to state. Some provide either medical care or financial assistance—not both; some grant temporary financial aid pending the outcome of medical treatment; some provide transportation costs to and from the point where medical care is offered; some offer these facilities whether or not the person is blind under the definition of the act and regardless of whether he is financially destitute or merely unable to pay for the services. The latter feature is, of course, the most liberal type of legislation. Acceptance of elderly blind applicants in the aid-to-needy-blind category rather than old-age assistance automatically extends the eye care service to him and, as an administrative policy, can be generally recommended.

Relief legislation of the state, which in general sets the limits to the activity of the local community in this matter, requires that the local government provide necessary medical care for indigent persons. The meager funds available for relief, and judicial interpretation of the meaning of "necessary medical care," usually prevent the extension of this obligation to care of the eyes. However, here again is an enabling clause already at hand which might be turned to advantage if state and local officials were favorably inclined to a prevention of blindness program. In this connection it is well to note that state relief laws may be interpreted so as to include medical care for the medically indigent as well as those dependent upon relief for support. A number of other services offered in most states may indirectly provide for care of the eyes. Aid-to-crippled-children is usually interpreted to include surgical treatment of congenital cataract—it may be extended to include other medical service to the eyes; a few states even provide glasses under this law. In connection with industrial accidents, workmen's compensation laws require employers to provide medical care for injured employees. This, of course, includes care of the eyes, but the statutory limits to such care are so narrow as to prevent in some instances the needed treatment.

These laws are valuable in the special field they are designed to cover, but as yet no state has a comprehensive law enabling state authorities to furnish eye care and appliances to all who need them.

In addition to the need for medical services to restore sight there is an equally great need for special services to conserve vision—if the program of prevention is to be a well-rounded one. Laws of 30 states authorize school districts to establish sight-saving classes (usually expressed as classes for handicapped children who cannot profit by the normal classroom procedure) when eight or more parents petition for such classes. To make this program financially possible the state pays for the added expense of such instruction, including the cost of special teachers and materials. Where numbers in a school district are too few to warrant the maintaining of a separate class, laws in 17 states authorize the co-operation of two or more school districts, the state providing funds for transportation. Where co-operation of school districts fails to make the classes possible a few states provide for special tutors and materials for individual instruction. (Now in practice in 15 states.)

Where defective vision has reached the point that pursuit of the normal occupation is no longer possible, 48 states in co-operation with the federal vocational training and rehabilitation program may make an effort to re-establish the work fitness of the handicapped, and try to place them. Some workmen's compensation laws insist upon the retraining of the injured employee. Merely by the process of revising definitions of eligibility, this service is in some states made available also to graduates of sight-saving classes.

The specific features of the state legislation outlined above bring into play from 10 to 20 different state and local agencies. I need not name them. To get the maximum efficiency out of such a program co-ordination and co-operation among the agencies would seem to be essential. To a certain extent isolated or competitive effort may accomplish real good, and there is no power to compel co-operation of agencies which act on specific grants of authority by the legislature with appropriations to put the law into effect. Every penny of appropriation, and every minute of a public servant's time, is vital to a prevention of blindness program. Consequently, efforts which through lack of co-ordination are wasted or ineffectual, should be planned more carefully. But how? In the state legislation establishing the aid-to-the-needy-blind program one will usually find powers granted to the head of the department of social welfare to delegate authority or create a bureau to assume responsibility for the prevention of blindness.

Does this mean that the new bureau now takes over the work formerly done under this head by other agencies, or that other agencies are now relieved of the prevention work they were doing? Not at all. It merely means that the bureau may initiate and co-operate with other government agencies in a prevention of blindness program. Its real responsibility is to endeavor to get officials in public health, industrial safety, motor vehicles, public welfare and education to think beyond their own specific problems as to how, on a co-operative basis, a comprehensive prevention of blindness program can be better achieved with the present machinery. Some states have found it desirable to create an interdepartmental committee under a chairman appointed by the governor to deal with the prevention of blindness. The members of the committee are usually the heads of the departments, but better results have

been obtained if the membership is made up of those in each department who are seriously and practically concerned with some aspect of preventive work. The federal government has in recent years found co-ordinating and interdepartmental committees indispensable to both peacetime and wartime activities. It is generally agreed that the more positive policy of government (as opposed to its purely regulatory functions) will make co-ordinating agencies a permanent aspect of government.

While it has been suggested that a great deal more can be done with the more efficient use of resources at hand, this does not preclude efforts to increase the personnel and appropriations for education and supervisory work. Some states grant funds for prevention work, but too many of them expect inadequate departmental budgets to bear the added cost of new activity.

Only passing mention can be made in a paper of this type of the part which voluntary agencies can play in the state program. It should be recognized that they are contributing greatly by stimulating public action, by pioneering and demonstrating new methods, by building up public opinion in support of all features of the program, and by vigilance on the enforcement of laws.

To conclude, may I summarize briefly the main points of this paper. First, adequate authorization for prevention of blindness work may already exist in statutes or discretionary powers granted to administrators. It is necessary to keep the administrator informed of needs and the possibilities of his office, if the authorization is to have any value. Second, an inconceivable amount of prevention work is already being done by a score of government agencies, but these efforts lose much of their potential power by being poorly integrated. Third, positive governmental action of the future will require certain structural changes in government. This should not cause fear or insecurity since government service seems to be an expanding rather than a contracting field of action. Finally, the truly great need at the moment is for a willingness on the part of government officials to see the problem of prevention of blindness as a comprehensive program, and not merely as a special phase of the work of some one governmental bureau or bureaus; as a program in which all can co-operate, and not one in which personal or professional interest must be safeguarded.

APPENDIX A

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF
BLINDNESS AND CONSERVATION OF VISION ϕ

<i>Type of legislation</i>	<i>List of states having specified legislation $\phi\phi$</i>
A. Case Finding and Fact Finding	
1. <i>Specifically related to eyes</i>	
a. Compulsory reporting of ophthalmia neonatorum	ALL STATES (Following state laws have only limited coverage: Ark., Colo., Ind., Ia., Kans., Me., Md., Mich., N. D., Tex., Wis.) H (49)
b. Compulsory reporting of trachoma	Ala., Ariz., Ark., Cal., Colo., Conn., D. C., Fla., Ga., Id., Ind., Ill., Ia., Kans., Ky., La., Me., Md., Mass., Mich., Minn., Miss., Mo., Mont., Nev., N. J., N. M., N. C., N. D., O., Okla., Ore., Pa., S. D., Tenn., Tex., Ut., Va., Wash., W. Va., Wis., Wyo. H (42)
c. Required eye examination of applicants for aid-to-needy-blind	Ala., Ariz., Ark., Cal., Colo., Conn., D. C.,* Fla., Ga., Id.,* Ill.,* Ind., Ia., Kans., Ky.,* La., Me., Mass.,* Mich., Minn., Miss., Mo., Mont., Nev.,* N. H., N. M., N. Y., N. C., N. D., O., Ore., Okla., Pa., R. I., S. C.,* Tenn., Tex., Ut., Vt.,* Va., Wash., W. Va.,* Wyo. W (43)
d. Required eye examination of applicants for special education of blind	Cal., Mich., Minn., Mo., N. Y., Ore., Pa., Tex. SB (8)
e. Required eye examination of applicants for special education of partially seeing	Cal., Fla., Ind., Mich., Minn., Ore., Pa. E (7)
f. Assignment of responsibility for maintaining state register of the blind	Colo., Fla., Id., Ind., Me., Mass., Minn., Miss., Mo., Mont., N. H., N. J., N. Y., N. C., O., Pa., R. I., S. C., Tenn., Tex., Ut., Va., Wis. CB or W (23)
g. Assignment of responsibility for studies of causes of blindness	Colo., Fla., Id., Minn., Mo., N. H., N. J.,* N. Y., N. C., N. D., O., Pa., S. C., Vt., Va., Wash. CB or W (16)

For notes, see page 27.

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION ϕ —(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation $\phi\phi$</i>
A. Case Finding and Fact Finding —(Continued)	
2. <i>General, presumably including eye</i>	
a. Reporting of congenital defects	Ariz., Cal., Colo., Conn., D. C., Ga., Ind., Kans., Ky., La., Me., Mich., Mo., Mont., Neb., Nev., N. J., N. M., N. Y., N. D., R. I., S. D., Tex., Ut., Vt., W. Va., Wis., Wyo. H (28)
b. Reporting of handicapped (or "crippled") children	Ala., Ariz., Ark., Cal., Colo., Conn., Del., D. C., Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., Me., Md., Mass., Mich., Minn., Miss., Mo., Mont., Neb., Nev., N. H., N. J., N. M., N. Y., N. C., N. D., O., Okla., Ore., Pa., R. I., S. C., S. D., Tenn., Tex., Ut., Vt., Va., Wash., W. Va., Wis., Wyo. H or E (48)
c. Reporting of industrial injuries	Ala.,* Ariz., Ark., Cal., Colo., Conn., Del., D. C., Fla., Ga.,* Id., Ill.,* Ind., Ia., Kans., Ky.,* Me.,* Md.,* Mass., Mich., Minn., Mo.,* Mont., Neb.,* Nev.,* N. J.,* N. M., N. Y., N. C., N. D., O., Okla., Ore., Pa.,* R. I.,* S. C.,* S. D., Tenn.,* Tex.,* Ut., Vt.,* Va., Wash., W. Va., Wis., Wyo. I (46)
d. Routine inspection of school children to discover defects	Ala., Ariz., Ark., Cal., Colo., Conn., Del., D. C., Fla., Ga., Ind., Kans., Ky., La., Me., Md., Mass., Minn., Miss., Mo., Mont., Neb., Nev., N. H., N. J., N. M., N. Y., N. C., N. D., O., Ore., Pa., R. I., S. C., S. D., Tex., Ut., Vt., Va., Wash., W. Va., Wyo. H or E (42)
e. Permissive physical examinations of juvenile delinquents	Ala., Ariz., D. C., Fla., Ga., Ill., Ind., Ia., Kans., Me., Md., Mass., Mich., Minn., Neb., Nev., N. H., N. J., N. M., N. Y., N. C., N. D.,* O., Okla., Ore., Pa., S. C., Vt., W. Va., Wis., Wyo. W (31)

For notes, see page 27.

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION ϕ —(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation $\phi\phi$</i>
A. Case Finding and Fact Finding —(Continued)	
2. <i>General, presumably including eye</i> f. Permissive physical examinations of child welfare clients	Ala., Ark., D. C., Fla., Ga., Ind., Ia., Me., Md., Mass., Mich., Minn., Neb., Nev., N. H., N. J., N. M., N. Y., N. C., N. D.,* O., Ore., Pa., S. C., Vt., W. Va., Wis., Wyo. W (28)
g. Permissive physical examinations of applicants for work permits	Ala., Conn., D. C., Ind., Ia., Me., Md., Mass., Mich., Mo., Neb., N. H., N. Y., N. C., Tex., Vt. E (16)
B. Protection of Sight by Control of Communicable Diseases	
1. <i>Specifically related to eyes</i> a. Compulsory use of prophylactic to prevent ophthalmia neonatorum	Ala., Ariz., Ark., Cal., Colo.,* Conn., Del., D. C., Fla.,* Ga., Id., Ill., Ind.,* Ia.,* Kans.,* Ky., La., Me.,* Md.,* Mass., Mich., Minn.,* Miss.,* Mo., Neb., Nev., N. H., N. J., N. M.,* N. Y., N. C., N. D.,* O., Okla.,* Ore., Pa., R. I., S. C., S. D., Tenn., Tex., Vt., Va., Wash., W. Va., Wis., Wyo.* H (47)
b. Provision for free distribution of prophylactics to prevent ophthalmia neonatorum	Ala., Ark., Cal., Colo., Conn., Del., D. C., Fla., Ga., Ill., Ia., Kans., Ky., Me., Md., Mass., Mich., Minn., Miss., Mo., Mont., N. H., N. J., N. M., N. Y., N. C., N. D., O., Okla., Pa., R. I., S. D., Tenn., Tex., Va., W. Va., Wis. H (37)
c. Compulsory reporting of use of prophylactic to prevent ophthalmia neonatorum on birth certificate	Ariz., Ark., Cal., Colo., Del., D. C., Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., La., Mich., Minn., Mo., Mont., Neb., N. J., N. M., N. Y., N. C., N. D., O., Okla., Ore., R. I., S. C., Tenn., Tex., Ut., Va., W. Va., Wis., Wyo. H (37)

For notes, see page 27.

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION ϕ —(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation $\phi\phi$</i>
B. Protection of Sight by Control of Communicable Diseases—(Continued)	
1. <i>Specifically related to eyes</i>	
d. Compulsory investigation of ophthalmia neonatorum cases by health authorities	Ala., Ark., Conn., Del., D. C., Ill., Ind., Kans., Ky., Md., Mass., Minn., Nev., N. M., N. Y., N. D., O., Okla., Pa., R. I., Tenn., Ut., Va., Wash., Wis.* H (25)
e. Provision for medical care of indigent ophthalmia neonatorum cases	Conn., D. C., Id., Ind., Ia.,* Kans., Ky., Md., Mass., Minn., N. H., N. J., N. Y., N. C., O., Okla., Pa., R. I., S. C., S. D., Ut., Va., Wash., W. Va., Wis. H (25)
2. <i>General, presumably including eye</i>	
a. Compulsory reporting communicable diseases	ALL STATES H (49)
b. Compulsory quarantine communicable diseases	Ala., Ariz., Ark., Cal., Colo., Conn., Del., D. C.,* Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., La., Md.,* Me., Mass., Mich., Minn., Miss., Mo., Mont., Neb., Nev., N. H., N. J., N. M., N. Y., N. C.,* N. D., O., Okla., Ore., Pa., R. I., S. C., S. D., Tenn., Tex., Ut., Vt., Va., W. Va., Wis., Wyo. H (48)
c. Compulsory premarital examination for syphilis	Ala.,* Cal., Colo., Conn., Del.,* Ill., Ind., Ia., Ky., La.,* Me., Mass., Mich., Neb.,* N. H., N. J., N. Y., N. C., N. D., O., Okla.,* Ore., Pa., R. I., S. D., Tenn., Tex.,* Ut., Vt., Va., W. Va., Wis., Wyo.* H (33)
d. Compulsory to include test for syphilis in prenatal examinations	Cal., Colo., Conn., Del., Ill., Ind., Ia., Ky., La., Me., Mass., Mich., Nev., N. J., N. Y., N. C., Okla., Ore., Pa., R. I., S. D., Ut., Vt., Wash., Wyo. H (25)

For notes, see page 27.

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION ϕ —(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation $\phi\phi$</i>
B. Protection of Sight by Control of Communicable Diseases— (Continued)	
2. <i>General, presumably including eye</i> e. Provision for examination of suspected cases of syphilis	Ala.,* Ariz., Ark., Cal., Colo., Conn., Del., D. C.,* Fla., Ga., Id., Ill., Ind., Ia., Ky., La., Me., Mass.,* Mich.,* Minn., Miss., Mo., Mont., Neb., Nev., N. H., N. J., N. M., N. Y., N. C., N. D., O., Okla., Ore., Pa.,* R. I., S. C., S. D., Tenn., Tex., Ut., Vt.,* Va., Wash., W. Va., Wis., Wyo. H (47)
f. Provision for diagnostic laboratory tests for syphilis	Ala., Ariz., Cal., Colo., Conn., Del., D. C.,* Id., Ill., Ind., Ia., Ky., La., Me., Mass., Mich., Mo., Nev., N. H., N. J., N. M., N. Y., N. C., N. D., O., Okla., Ore., Pa., R. I., S. D., Tenn., Tex., Ut., Vt., Va., Wash., W. Va., Wis., Wyo. H (39)
g. Provision for free distribution of drugs and/or free treatment for syphilis	Ariz., Cal., Colo., Conn., Del., D. C., Fla., Id., Ill., Ind., Ia., Ky., Me., Mass., Mich., Miss., Mo., Mont., Nev., N. H., N. J., N. M., N. Y., N. C., N. D., O., Ore., Pa., R. I., S. C., S. D., Tenn., Tex., Ut., Vt., Wash., W. Va., Wis., Wyo. H (39)
C. Protection of Sight by Safety Measures	
1. <i>Specifically related to eyes</i> a. Required use of eye safety equipment (safety code for head and eyes) in specified occupations	Ariz., Ark., Cal., Conn., Del., D. C., Fla.,* Ga.,* Id., Ill., Ind., Ia., Kans., Ky., La., Me., Md., Mass., Mich., Minn., Miss., Mo., Mont., Neb., Nev., N. H., N. J., N. Y., N. C., N. D., O., Okla., Ore., Pa., R. I., Tenn., Tex., Ut., Vt., Va., Wash., W. Va., Wis. I (43)

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION ϕ —(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation $\phi\phi$</i>
C. Protection of Sight by Safety Measures—(Continued)	
2. <i>General, presumably including eye</i>	
a. Responsibility of employers to provide reasonably safe employment	Ala., Cal., Conn., Fla., Id., Ia., Ky., La., Mass., Mich., Minn., Nev., N. J., N. Y., N. D., O., Okla., Pa., R. I., S. C., Ut., Vt., Wis., Wyo. I (24)
b. Provision for safety inspection of industries	Ala., Ark., Cal., Colo., Conn., Del.,* D. C., Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., La., Me., Mass., Mich., Minn., Miss., Mo., Mont., Neb., Nev., N. H., N. J., N. M.,* N. Y., N. C., N. D., O., Okla., Ore., Pa., R. I., S. C., S. D., Tenn., Tex., Ut., Vt., Va., Wash., W. Va., Wis., Wyo. I (47)
c. Compulsory use of safety glass in vehicles: In all vehicles	Ark., Cal., Colo.,* Conn., Del., D. C., Id.,* Ill., Ind., Ia., Kans.,* La., Me., Md., Mich., Minn., Miss., Mo., Neb., N. H., N. J., N. Y., N. C., O., Pa., R. I., S. C., Ut., Vt., Va., Wash., W. Va., Wis. MV (33)
In public conveyances only	Mass., N. D., Okla., Ore.,* S. D., Tenn. MV (6)
d. Control of sale and/or use of fireworks	Ariz., Cal.,* Conn., Del., D. C., Fla., Ill.,* Ind., Ia., Ky.,* Md., Mich., Minn., N. J., N. Y., O., Pa., R. I., Ut., W. Va., Wis.* F (21)
e. Control of sale and/or use of firearms by minors	Ala., Ariz., Colo., Conn., Del., D. C., Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., Me., Mass., Mich., Minn., Mo., Mont., Nev., N. H., N. J., N. Y., N. C., N. D., O., Ore., Pa., R. I., S. C., S. D., Tenn., Tex., Ut., Vt., Va., Wash., W. Va., Wis., Wyo. P (41)

For notes, see page 27.

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION—(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation</i>
C. Protection of Sight by Safety Measures—(Continued)	
2. <i>General, presumably including eye</i>	
f. Prohibition and/or control of sale of harmful drugs and cosmetics	Ala.,* Ariz., Cal., Colo., Conn., D. C., Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., Me., Md., Mass., Mich., Minn., Miss., Mo., Mont., Neb., N. H., N. J., N. M., N. Y., N. C., N. D., O., Ore., Pa., S. C., S. D., Tenn., Tex., Ut., Vt., Va., Wash., W. Va., Wis., Wyo. H or A (43)
g. Compulsory labelling of harmful drugs and cosmetics	Ala.,* Ariz., Cal., Colo., Conn., D. C., Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., La., Md., Mass., Mich., Minn., Miss., Mo., Mont., N. H., N. J., N. M., N. Y., N. C., N. D., O., Ore., Pa., Tex., Ut., Vt., Wash., W. Va., Wis. H or A (37)
h. Compulsory labelling of harmful chemical substances	Ala., Ariz., Cal., Conn., Del., D. C., Id., Ill., Ia., Kans., La., Md., Mass., Mich., Miss., Mo., Mont., Nev., N. H., N. J., N. M., N. Y., N. C., N. D., O., Ore., Pa., R. I., Tex., Ut., Vt., Wash., W. Va., Wis. H or A (34)
D. General Provisions Related to Conservation of Vision	
a. Minimum lighting standards prescribed for schools	Conn., Fla., Ill., Ind., Mass., Miss., Mont., N. H., N. Y., N. C., N. D., O., Pa., Tex., Ut., Vt., Wis. E (17)
b. Minimum lighting standards prescribed for industry	Cal., Conn., Ill., Ind., Kans., Md., Mass., Mich., Miss., N. H., N. J., N. Y., N. C., O., Okla., Ore., Pa., R. I., Tenn., Tex.,* Ut., Vt., Wash., Wis. I (24)
c. Provision for control of school lighting through review of building plans	Conn., D. C., Fla., Ind., Ky., La., Me., Mich., Minn., Mont., Nev., N. Y., N. D., O., Pa., Tex., Ut., Vt., Wis. E or H (19)

For notes, see page 27.

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION ϕ —(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation $\phi\phi$</i>
D. General Provisions Related to Conservation of Vision—(Continued)	
d. Licensing of physicians	ALL STATES E or L (49)
e. Licensing of optometrists	ALL STATES E or L (49)
f. Prohibition of sale or prescription of corrective appliances by unqualified persons	Ala., Ariz., Ark., Cal., Conn., Del., Fla., Ga.,* Id., Ill., Ind., Kans., La., Me., Md., Mass., Mich., Minn.,* N. J., N. Y., O., Okla., Pa., R. I., Tex., Vt., Va., Wash., Wis. E (29)
g. Provision for consultant or supervisory ophthalmological service in aid-to-needy-blind program	Ala., Ariz., Cal., Colo., Fla., Ga., Ind., Ia., Kans., N. D., Ore., Pa., Tex. W (13)
h. Prescribing qualifications of examiners under aid-to-needy-blind program	Ala., Ariz., Ark., Cal., Colo., D. C., Ga., Id., Ill., Ind., Ia., Kans.,* Ky., La., Me., Md., Minn., Mont., Neb., Nev., N. H., N. J., N. M., N. C., N. D., O., Okla., Ore., Pa., R. I., S. D., Tenn., Tex., Ut., Va., Wash., W. Va., Wis., Wyo. W (39)
E. Medical Care for Restoration of Sight or Prevention of Blindness	
1. <i>Specifically related to eyes</i>	
a. Provision for medical care to restore vision of persons eligible for aid-to-needy blind	Ala., Ariz., Ark., Cal., Colo., Fla., Ga., Id., Ind., Ia., Kans., Me., Minn., N. Y., N. C., N. D., O., Ore., Pa., R. I., S. C., Tenn., Ut., Wash., Wyo. W (25)
b. Provision for medical care to prevent blindness of any medically indigent person	Ark., Colo., Fla., Ga., Id., Ind., Ia., Kans., Ky., La., Me., Md.,* Mich., Miss., Mont., Neb., N. H., N. J., N. M., N. Y., N. C., N. D., O., Okla.,* Ore., Pa., Ut., Wash. W (28)
c. Provision for transportation costs for purposes of medical care	Ariz., Ark., Cal., Colo., Fla., Ga., Id., Ind., Ia., Ky., La., Me., Md.,* Mont., Neb., N. M., N. Y., N. D., Pa., Ut. W (20)

For notes, see page 27.

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION—(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation</i>
E. Medical Care for Restoration of Sight or Prevention of Blindness—(Continued) 2. General, presumably including eye a. Permissive provision for medical care in eye defects under crippled children's service	Ariz., Ark., Cal., Colo., Del., Fla., Ga., Id., Ill., Ind., Ia., Kans.,* Ky., Me., Md., Mass., Mich.,* Minn., Miss., Mo., Mont., Nev., N. H.,* N. J., N. M., N. Y., N. D., O., Okla., Ore., Pa., R. I., Ut., Vt., W. Va., Wis. W (36)
b. Required medical care for injured employees	Ala., Ariz., Ark., Cal., Colo., Conn., Del., D. C., Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., La., Me., Md., Mass., Mich., Minn., Mo., Mont., Neb., Nev., N. H., N. J., N. M., N. Y., N. C., N. D., O., Okla., Ore., Pa., R. I., S. C., S. D., Tenn., Tex., Ut., Vt., Va., Wash., W. Va., Wis., Wyo. I (48)
c. General provision for medical care at state expense or in state institutions for indigents	Ariz., Ark., Cal., Conn.,* D. C., Fla., Id., Ill., Ind.,* Ia., Kans.,* Ky.,* La., Mass., Mich., Minn., Miss., Mo., Mont., Neb., Nev., N. H., N. J., N. M., N. Y., N. C.,* N. D., O., Okla., Ore., Pa., R. I., S. D., Tenn., Tex., Ut., Va., Wash., W. Va., Wis., Wyo. W (41)
d. General provision for medical care at state expense or in state institutions for medically indigent (See also Section B on medical care in communicable diseases)	Ark., D. C., Ill., Me., Mich., Mont., N. H., N. Y., N. C., Pa., Tex., Ut., Wash., Wis. W (14)
F. Special Services for the Visually Handicapped, Not Blind 1. Specifically related to eyes	NONE

For notes, see page 27.

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION ϕ —(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation $\phi\phi$</i>
F. Special Services for the Visually Handicapped, Not Blind —(Continued)	
2. <i>General, presumably including eye</i>	
a. Authorization for establishment of special classes for education of handicapped	Cal., Colo., Conn., Del., D. C., Fla., Ill., Ind., Ky., La., Md., Mass., Mich., Minn., Mo., Neb., N. H., N. J., N. Y., N. C., O., Ore., Pa., S. C., Tenn., Ut., Va., Wash., Wis., Wyo. E (30)
b. State subsidy for special classes for education of handicapped	Cal., Colo., Conn., Del., D. C., Fla., Ill., Ind., La., Md., Mass., Mich., Minn., Mo., N. H., N. J., N. Y., N. C., O., Ore., Pa., Tenn., Wash., Wis. E (24)
c. Provision for special education of handicapped outside district of residence	Cal., Colo., Conn.,* Ill., Ind., Ky.,* La.,* Mass., Mich., Mo., N. J., N. Y., O., Ore., Pa., Ut., Wyo. E (17)
d. Provision for special educational materials and supervision for individual handicapped child where no class is available	Ariz., Cal., Colo., Fla.,* Ky.,* Mass., Mich., Mo., N. H., N. J., N. Y., Ore., Pa., Ut., Wash. E (15)
e. Provision under vocational rehabilitation program for correction of defects, training and placement	Ala., Ariz., Ark., Cal., Colo., Conn., D. C., Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., La., Me., Md., Mass., Mich., Minn., Miss., Mo., Mont., Neb., Nev., N. H., N. J., N. M., N. Y., N. C., N. D., O., Okla., Ore., Pa., R. I., S. C., S. D., Tenn., Tex., Ut., Vt., Va., Wash., W. Va., Wis., Wyo. CB, I, E or jointly (48)
f. Provision for compensation for permanent injury to employees	Ala., Ariz.,* Ark., Cal., Colo., Conn., Del., D. C., Fla., Ga., Id., Ill., Ind., Ia., Kans., Ky., Me., Md., Mass., Mich., Minn., Mo., Mont., Neb., Nev., N. H., N. J., N. M., N. Y., N. C., N. D., O., Ore., Pa., R. I., S. C., S. D., Tenn., Tex., Ut., Vt., Va., Wash., W. Va., Wis., Wyo. I (46)

For notes, see page 27.

SUMMARY OF STATE LEGISLATION RELATED TO PREVENTION OF BLINDNESS
AND CONSERVATION OF VISION ϕ —(Continued)

<i>Type of legislation</i>	<i>List of states having specified legislation $\phi\phi$</i>
G. Administrative Responsibilities for State Program	
1. <i>Specifically related to eyes</i>	
a. Designation of department or sub-department to assume responsibility for prevention of blindness activities	Ala.,* Ariz., Ark., Colo., Conn.,* Del.,* Fla., Ga., Id., Ind., Ia., Kans., La., Me., Mass.,* Mich., Minn., Miss., Mo., Mont., Neb., N. H., N. J., N. M., N. Y., N. C., N. D., O., Ore., Pa., R. I., S. C., S. D., Tenn., Tex.,* Va., Wash., W. Va., Wis., Wyo. CB or W (40)
b. Authorization to co-operate with other departments in prevention of blindness program	Ark., Fla., Ga., Id., Ind., Ia., Kans., Ky., La., Me., Miss., Mo., Mont., Neb., N. H., N. M., N. Y., N. C., N. D., O., Pa., R. I., S. C., S. D., Tenn., Tex., Va., Wash., Wyo. CB or W (29)

NOTES: Figures in parentheses () indicate number of states having specified legislation. Letters indicate departments usually having responsibility for administration.

A—Agriculture

H—Health Dept.

W—Welfare Dept.

I—Industrial Commission or
Labor Dept.

E—Education Dept.

CB—Commission for Blind

SB—School for the Blind

P—Police Dept.

F—Fire Dept.

L—License Board

MV—Motor Vehicle Dept.

ϕ Summary of legislation as of March, 1942.

$\phi\phi$ Regulations of Health Departments having the status of law are included.

* Indicates that the law has only limited coverage, indefinite or otherwise unsatisfactory.

APPENDIX B

PROVISIONS OF LEGISLATION NOW IN FORCE CONCERNING THE
PREVENTION OF BLINDNESS

- A. 1-a. Any diseased condition of the eye or eyes of any infant in which there is inflammation, redness, swelling or any unnatural discharge at any time within two weeks after birth, shall . . . be deemed to be ophthalmia neonatorum.
- It shall be the duty of any physician, midwife, nurse, parent or other person or persons assisting any woman in childbirth or assisting in the care of any infant to report within six hours after noting the same, any such case of ophthalmia neonatorum coming to his or her attention, to the local health officer of the city or town within which the mother of such infant shall have been at the time of confinement.
- It shall be the duty of the local health officer to investigate each case of ophthalmia neonatorum and the health officer shall be required to report all such cases and their results to the state board of health.
- A. 1-b. It is the duty of physicians to report immediately to the health officer of the county in which disease exists, every case of contagious or infectious disease known to him to exist. (Administrative orders usually include trachoma.)
- A. 1-c. No application for assistance shall be approved until the applicant has been examined.
- A. 1-d. It is hereby made the duty of the board of managers (of the schools for the blind) to have the eyes of every pupil who may be admitted into the school for the blind carefully examined by the physician and oculist of the said school, and if upon examination by such physician and oculist it shall appear that, by medical treatment or by surgical operation, the sight may be improved or restored, he shall, with consent of the board and the parents, institute such treatment and perform such operation as in his judgment may seem practicable and advisable.
- A. 1-e. The medical examination necessary for the certification of handicapped children (includes partially seeing) shall be conducted by a physician and surgeon licensed to practice medicine and surgery by the state board of medical examiners. Any school district may employ its own plan for certification of handicapped children for special instruction subject to the approval of the superintendent of public instruction, provided it meets with the standard for medical examinations set forth above.
- A. 1-f, g. A division of service for the blind is hereby created under the state welfare board, with an independent administrative board known as the council for the blind. Under the direction

of and with the approval of the state department of welfare, it shall plan, supervise, and carry out the following activities:

1. Shall inquire into the causes of blindness.
2. Shall cause to be compiled and maintained a complete register of the blind in the state, which shall describe the condition, cause of blindness, and capacity for education and industrial training, with such other facts as may seem to the council to be of value.

- A. 2-a. Within thirty days after the date of the birth of any child born in this state with congenital deformities, the physician, midwife or person acting as midwife, shall prepare and file with the commission a statement setting forth such congenital deformity.
- A. 2-b. It shall be the duty of every school nurse, school physician, school attendance officer, superintendent of schools, principal, teacher, to keep a permanent public health record of all physical defects and handicaps which might permanently cripple. It shall be the duty of the state commissioner of education to . . . report to . . . the children's bureau of the state . . . all diseases and defects that are of a continuous nature or that might result in permanent handicap to the child.
- A. 2-c. Every employer shall hereafter keep a record of all injuries, fatal or otherwise, received by his employees in the course of their employment. On the eighth day after the occurrence of an accident resulting in personal injury, a report thereof shall be made in writing to the industrial accident board on blanks to be procured from the board for that purpose.
- A. 2-d. The medical inspector, or the nurse under immediate direction of the medical inspector, shall examine every pupil to learn whether physical defects exist, and keep a record from year to year of his growth and development.
- A. 2-e. The court may cause any person coming under its jurisdiction to be examined by a physician, psychiatrist, or psychologist, designated by the court, in order that the condition, special needs, and personality of such person may be given due consideration.
- A. 2-f. The welfare board may, in its discretion, direct a medical examination of the petitioner (mother) and any of the children, or their father, and order payment to the physician for his services in making the examination.

(Since child welfare cases are usually under the jurisdiction of the children's court, a general grant of power to authorize physical examinations for all persons under the jurisdiction of the court—as in (e) above—would cover child welfare cases.)

- A. 2-g. The person authorized and required to issue work permits or certificates shall not issue the same until he has received, examined, approved and filed the following papers duly executed:
- A statement of a physician connected officially with the board or department of health which statement shall certify that in the opinion of the physician issuing the statement, the young person is of the age herein stated, and is in sound health and physically able to perform the work which he intends to do.
- B. 1-a. It shall be the duty of any physician, midwife or nurse who attends or assists at the birth of a child, to instill or have instilled in each eye of the new born baby, as soon as possible and not later than one hour after birth, a one per cent (1%) solution of silver nitrate or some other equally effective prophylactic for the prevention of ophthalmia neonatorum approved by the state department of public health.
- B. 1-b. The state department of health shall furnish, free of cost, to a licensed physician or midwife, any prophylactic remedy which it deems best for the prevention of ophthalmia neonatorum, together with instructions which it considers necessary for the proper administration of the same.
- B. 1-c. Inclusion of item in birth certificate as follows: What preventive for ophthalmia neonatorum was used?
- B. 1-d. It shall be the duty of the local health officer to investigate each case of ophthalmia neonatorum and the health officer shall be required to report all such cases and their results to the state board of health.
- B. 1-e. Upon receipt of such report (concerning inflammation of the eyes of an infant) the local board of health shall direct the parents or persons having charge of such infant to place the infant immediately under the care of a licensed physician, or under the care of physicians of the local municipal government of the locality over which the board has jurisdiction, if the parents are unable to pay for such services.
- B. 2-a. It is the duty of physicians to report immediately to the health officer of the county in which disease exists every case of contagious or infectious disease known to him to exist.
- B. 2-b. Upon receipt of report of the presence of contagious or infectious disease it shall be the duty of the city (state) superintendent of public health to issue an order of quarantine.
- B. 2-c. Before any person who now is or may hereafter be authorized by law to issue marriage licenses shall issue any such license, each applicant therefor shall file with him a certificate from a qualified physician, which certificate shall state that the applicant has submitted to a Wassermann or Kahn or other similar standard laboratory test and that in the opinion of the physician the person either is not infected with syphilis or is not

in a stage of that disease which may become communicable. The certificate shall be accompanied by a statement from person in charge of the laboratory making the test setting forth the name of test, date made, name of physician, and person for whom test was made.

For purposes of this act a standard laboratory blood test shall be a test for syphilis approved by the commission of health, and shall be made in a laboratory approved by the commissioner of health.

- B. 2-d. Every physician attending a pregnant woman shall take, or cause to be taken, a sample of blood of such woman at the time of the first examination, and submit such sample to an approved laboratory for a standard serological test for syphilis.

In reporting every birth or stillbirth, physicians and others permitted to attend pregnancy cases and required to report births and stillbirths shall state in the birth certificate whether a blood test for syphilis has been made during such pregnancy; if made, the date when made, and if not made, the reason why such test was not made.

- B. 2-e. When a local board of health or health officer receives a report from a person authorized to make a report that a person within the jurisdiction of the local board is, or is suspected to be, suffering from or infected with a venereal disease, the board or health officer may cause a medical examination to be made for the purpose of ascertaining whether the person is in fact suffering from or infected with such disease.

A prostitute or other lewd person shall be considered a suspected person within the meaning of this act and may be required to submit for examination at any time.

- B. 2-f. The samples of blood shall be submitted to an approved laboratory for a standard serological test for syphilis. Such laboratory tests as are required by this act may be made on request without charge by the state department of health.

- B. 2-g. Any person suffering from a venereal disease in an infectious stage and who is unable to pay for treatment may apply for care and treatment to the local board of health having jurisdiction in the place he resides. If the board after investigation finds that the person is in fact unable to pay for treatment it shall be provided without cost.

The State Department of Health shall—

Provide facilities for free examination of specimens or blood samples for the diagnosis of gonorrheal infections or syphilis; provide at cost, vaccines or anti-toxins for the treatment of venereal disease infections.

- C. 1-a. It shall be unlawful for any person, firm, co-partnership or corporation to operate, or cause to be operated, any of the equipment or machinery mentioned in this section without it

being first properly equipped with proper safety devices and guards. (It then proceeds to list all grinding machinery and others resulting in flying particles.)

C. 2-a. As between the employer and his employees, it is the duty of the master to furnish suitable machinery, and see that it is kept in repair and he is bound to exercise reasonable care to prevent accidents.

C. 2-b. The commissioner of labor and deputy commissioner shall be factory inspectors and they shall provide for the appointment of deputy factory inspectors, two of whom shall be women. Said factory inspectors and their deputies are hereby empowered to visit and inspect at all reasonable hours, as often as practicable or required, the factories, workshops and other manufacturing establishments in this state. It shall be the duty of such inspectors to enforce all the provisions of this act and to prosecute all violations of the same before a magistrate or before a court of competent jurisdiction.

The commissioner of labor is hereby authorized and required to cause at least an annual inspection of all manufacturing establishments, factories, hotels, workshops, and stores.

C. 2-c. No person shall drive any motor vehicle manufactured on or after July 1, 1935, registered in this state unless such vehicle is equipped with approved safety glass wherever glass is used in doors, windows, and windshields. The term windshield shall be construed to include wings, deflectors, and side shields.

C. 2-d. Any person who shall offer for sale, expose for sale or sell at retail, give, furnish, use, explode, or cause to explode any fireworks (here follows a long list of articles defined as fireworks) shall be guilty of a misdemeanor; provided that the council or commission of any city, village, or township may upon application in writing grant a permit for a public display of fireworks by municipalities, fair associations, amusement parks, or other approved organizations, when handled by competent operator.

C. 2-e. Whoever sells or furnishes to a minor under the age of fifteen . . . any firearm or ammunition therefor, or whoever sells or furnishes to any minor fifteen years of age or over who does not possess and display a license . . . shall . . . be punished by a fine . . .

C. 2-f, g. It shall be unlawful for any person or persons licensed under the provisions of this act to sell or retail or furnish any of the poisons named in the schedules hereinafter set forth without offering or causing to be affixed to the container the word "poison" and the name of the article.

Unless sold on prescriptions of licensed physicians, the sale of poisons shall be recorded, stating date of sale, name and address of purchaser, name and quantity of the poison, and pur-

pose as represented by the purchaser, and the name of dispenser.

Wholesale dealers in drugs, medicines and pharmaceutical preparations of chemicals shall affix or cause to be affixed to every bottle, box, parcel and outer enclosure of an original package containing any of the articles enumerated in this Act, a suitable label or brand in red with the word "poison" upon it.

- C. 2-h. Any dangerous caustic or corrosive substance (list of such substances is appended to the act, including acids, etc.) must bear a conspicuous, easily legible label or sticker containing the name of the article, the name and place of business of manufacturer, packer, seller, distributor, and the word "poison," and directions for treatment in case of personal injury.
- D. a. Every . . . building used for school purposes . . . must be lighted in such a manner as to minimize the eye strain. . . .
- D. b. All establishments shall be adequately lighted, heated and ventilated (general labor regulations) (for specific industries more definite regulations are presented). Standards are determined by administrative order.
- D. c. Plans and specifications for every schoolhouse . . . must be submitted to the state superintendent of education and also to the parish health officer, that it may be determined whether every hygienic or necessary provision is made, especially with reference to . . . light.
- D. d. All persons who wish to practice medicine, surgery, and midwifery in any of its branches in this state shall make application to the board of registration of medicine to be registered and for a certificate of registration. This registration and certificate shall be granted to such applicants as shall furnish satisfactory proofs for: (and here follows a list of conditions with which the applicant must comply).
- D. e. Any persons who wish to practice optometry in this state shall make application to the board of examiners in optometry. Any applicant for registration shall be required to: (here follows an extensive list of qualifications).
- D. f. It shall be unlawful for any person, except a registered optometrist, or physician specializing in treatment of the eyes, to have in his possession trial lenses, trial frames, graduated test cards, or other appliances or instruments for the purpose of rendering assistance to his patrons in the selection of lenses, spectacles, eyeglasses, or to sell precision lenses or replace broken lenses except upon prescription of a regularly licensed optometrist or physician.

(Some state laws regulating the practice of optometry nullify the general law by inclusion of the following provision: The provisions of this act do not apply to persons selling

spectacles or eyeglasses and who do not attempt either directly or indirectly to adapt them to the eye, and who do not practice or profess to practice optometry.)

- D. g. The social welfare board may appoint an advisory committee of six ophthalmologists (some laws authorize a single supervising ophthalmologist) who shall serve in a consulting capacity. The members of the committee shall receive no compensation for their services but they shall be allowed their actual traveling expenses incurred in the discharge of their duty.

The committee shall make recommendations and give advice to the board on rules and regulations governing all questions of eligibility as to blindness under this chapter.

- D. h. No application for blind assistance shall be approved until the applicant has been examined by a duly licensed ophthalmologist or licensed physician skilled in the diseases of the eye.

- E. 1-a. If upon examination or re-examination it shall be found that the recipient or claimant for relief may have such disability benefited or removed by proper surgical operation or medical treatment, the state department may authorize the expenditure for such operation or treatment and expense incident thereto.

Mandatory laws existing in 10 states read:

No assistance under this chapter shall be granted or continued to any person who refuses medical, surgical, or other treatment when his eyesight may be partially or wholly restored by such treatment.

- E. 1-b. On the basis of the findings of the ophthalmologist's examination as provided for above, remedial services may be provided by the state board to any person who is in need of treatment either to prevent blindness or to restore eyesight, whether or not he is a blind person as defined in this chapter, whether or not he is an applicant or recipient of old-age or blind assistance or whether or not he is eighteen years of age or over, if he is otherwise qualified for assistance under this chapter, provided such person is unable to assume such expenses for remedial services.

- E. 1-c. The treatment or operation recommended shall be given at a hospital or clinic designated by the advisory committee, and necessary traveling expenses shall be allowed as part of the expenses of treatment.

- E. 2-a. The state department shall establish and administer a program of service for children who are crippled or who are suffering from conditions which lead to crippling, which shall provide for developing, extending, and improving services for locating such children and for providing for medical, surgical, or corrective and other services and care, and facilities for diagnosis, hospitalization, and after care.

(In the absence of specific exclusion it is assumed that the above legislation would cover eye defects; some states, however, limit the application of the law to congenital cataracts so far as eye defects are concerned.)

- E. 2-b. The employer shall be liable for reasonable medical and hospital services and medicines as and when needed subject to the approval of the compensation commissioner, not however, to exceed the regular charge made for such service in similar cases.

(The provisions for medical care vary widely from state to state, especially as to the amount of medical care to be furnished, the time during which it is to be available, and the total cost of such service.)

- E. 2-c. If it shall appear that the person visited and aided is a poor person within meaning of this chapter (a person unable to support himself or those dependent upon him), the physician or nurse attending shall report the fact in writing to the county welfare board, which may grant such further medical, surgical or other relief to the poor person as circumstances may require or as may deem necessary.

In all cases wherein medical or surgical treatment is urgent a poor person may be removed and admitted to any public or private hospital in the municipality.

- E. 2-d. Medical aid and services and hospitalization for persons unable to provide such necessities for themselves are hereby declared to be the legal and financial duty and responsibility of county commissioners, payable from the county poor fund. It shall be the duty of the board of county commissioners to make provisions for competent and skilled medical or surgical services as approved by the state board of health or the state medical association.

- F. 2-a. The board of education of any school district may, upon the petition of parents or guardians of eight (8) or more resident children . . . , who, by reason of being blind or having defective vision (same for deaf, crippled, and epileptic), cannot profitably or safely be educated with other classes in the public schools of such district, establish and maintain within the limits of the district one or more day schools or classes for the education of such children.

- F. 2-b. To reimburse said city or district for such expenditure the state treasurer is hereby authorized to pay to the treasurer of the proper school district, out of the general fund of the state, the actual expense incurred for teachers' salaries, for necessary school equipment and for special services in such schools and classes. (On the basis of the difference between normal instruction and the cost of special instruction.)

- F. 2-c. The board of education of any school district that does not maintain a class for children named in this act may pay the

- tuition and transportation of any such children to a district maintaining such schools or classes.
- F. 2-d. The board of directors of any school district which has one or more handicapped children (including visually handicapped) with the approval of the superintendent of instruction, shall establish and organize suitable special class or instruction in regular classes or in the home and may provide special materials and equipment for special classes, special schools or home instruction.
- F. 2-e. It shall be the duty of the division of rehabilitation to direct the rehabilitation of any persons disabled in industry or otherwise and their return to civil employment.
(The pattern of co-operation in the rehabilitation program in most states includes a rehabilitation bureau or commission, the department of education and the workmen's compensation division of the department of labor.)
- F. 2-f. For disabilities partial in character the compensation shall be . . . for the loss of an eye, sixty-six and two-thirds per centum of the daily wages during 125 weeks. The loss of both eyes shall constitute total and permanent disability and shall be compensated for according to that schedule. . . In all cases involving a permanent partial loss of the use or function of . . . an eye the compensation shall bear such relation to the amounts named as the disabilities bear to those produced by the total loss of the member.
- G. 1-a. b. The state board of social welfare shall initiate or co-operate with other agencies in developing programs for the prevention of blindness and restoration of eyesight.

CHAIRMAN LANSDALE: I am sure you will agree with me that the Society has lined up an excellent volunteer in Mr. McConnell. Anybody who can put material of this sort together ought to be kept in harness. Also, I am very much interested in the fact that, coming from a university, he has shown this practical interest in a subject of such importance. I am going to ask him later on in the panel, when we talk about voluntary efforts, whether he will suggest means of recruiting the interest of persons in the academic field in prevention of blindness programs. He must have some ideas on this because he is an example of how good a person can be recruited.

I think many of you have questions to ask Mr. McConnell, either growing out of his remarks or in reference to the tabulation of state legislation. We have a period now when we shall give you

a chance to cross-examine Mr. McConnell or to make any comments you wish.

Well, I will start off. I happen to do a little teaching myself, and one of the things that we find most difficult when our students want to find out about what goes on is to get legislative material in their hands conveniently. In fact, I think most of you have run up against the problem of trying to find out on short notice the provisions of the statutes in various states on any particular problem in the field of health, education, and welfare. Our state statutes are so voluminous that it is difficult to run down any material.

The other day one of the officials of the American Public Welfare Association told me that she was asked very suddenly to furnish a list of those states which, like California, have attempted to keep "Okies" out of their borders. You will recall there is a recent Supreme Court decision which nullified such provision, and which stated that a certain number of states had similar statutes to California. She said that for her to have put together a list of such statutes would have required probably two or three months' research, because those provisions in some states would be buried way back in the early poor law, and so on. May I say, parenthetically, fortunately the Toland Committee, in a recent report on this particular case, has given the excerpts from the statutes of the states governing this particular problem.

Now, Mr. McConnell has, it seems to me, made a grand start in this outline he has prepared. I should like to ask him when is it going to be available, because I see that this is labeled tentative and not for publication.

MR. MCCONNELL: The development of this study goes beyond the mere tabulation of state requirements on specific pieces of legislation. As most of you realize, laws may be merely the foundation for rather extensive government action, and the law itself, while on the statute books, may be absolutely meaningless because of some failure on the part of the legislature or the administration to actually put it to work. Furthermore, laws once passed are subject to interpretation by the courts which may change entirely the original meaning. Consequently, when you have a statute, you have only the beginning of what may eventually be the procedure in a given state. So, following the collection of statutes, there must

be some study made of the interpretation which these statutes have had at the hands of the courts, and of the practical way in which they are used by administrators in that particular state.

If the study is to have any real value, ultimately, I think those three phases will have to be dealt with. That may take some time yet. To speak on the question of where to get material for this sort of thing, the most important source of data such as this (if it has not been collected by some agency or foundation already) is in what is known as the consolidated and annotated laws of a given state, which you will find in most law libraries. These statutes have been boiled down and combined, usually into relatively few volumes, adequately indexed. If you know fairly well what you are looking for, you can trace through the index to indicate where the fact can be found in the statute itself.

Now, in order to find the type of law that Mr. Lansdale referred to on the "Okies," you would be able to trace that down in the state statutes in a reasonable amount of time by looking through the index on laws concerning settlement and the importation of indigents. While it would be work (I am not giving you a short cut to information, by any means), it can be done with reasonable ease merely by working through these annotated and consolidated laws.

QUESTION: What is the publication date of these annotations?

MR. McCONNELL: Practically all of the statutes are kept up to date either by the agency which compiles them or by the use of the statutes for a particular year following the publication of the consolidated work. On a good law school library shelf you will find statutes up to the present time. That may mean anywhere from one to two years back, largely because of the slowness with which some states publish their material, but within a reasonable time I should think that you ought to be able to keep up to date on this work.

QUESTION: Will the summary of the legislation be available in published form, and will it be rechecked before publication?

ANSWER: Yes, the legislation will be rechecked by proper agencies familiar with the legislation in each state, and then published as part of the proceedings of this meeting.

QUESTION: Is general legal authorization relatively more valuable than specific mandatory provision?

MR. McCONNELL: I think I can answer that, without any hesitation, in the affirmative. It has its danger, of course, because there is so great a power resting in the hands of the administrator both to abuse and misuse. I think that in this country we have grown up, however, from a period in which the legislature felt that unless it could make specific legislation on every particular issue, it wasn't doing its job and was opening the public generally to rather arbitrary and autocratic type of government. But we are changing our viewpoint. However, there are occasions, I must admit, when the only way to secure action is by specific legislation. But given capable and co-operative administrators, the general laws are more effective.

Patterns in Practice—A Panel Discussion

Leader: MR. LANSDALE

CHAIRMAN LANSDALE: We had some little difficulty in our group in deciding which of the various agencies represented here should come first and thought that we might as well start with health and start with Washington, D. C. So Dr. Rice will be the first one to make some comments.

DR. C. E. RICE (Consultant on Blindness, Bureau of Public Assistance, Social Security Board, Washington, D. C.): I was somewhat perturbed this morning with the emphasis on laws. I know laws are necessary and desirable, but we want to keep our perspective. You can have laws on the statute books for reporting of ophthalmia neonatorum; you can have laws on the statute books for requiring the proper treatment of people with, shall we say, syphilis, and so on; but we have to go back farther than that and we have to be sure that our medical practitioners and other people are on the firing line and ready to do what is necessary, and know how to do it.

I was in a state recently, not more than a month ago, where the county health officer had three counties. In one of his counties, not a single physician knew how to give intravenous salvarsan. The eye physician, who was some forty miles away from the county seat, the nearest eye physician, said that when he saw a case of

ophthalmia neonatorum it was already three weeks old, that he never saw them early. So we have got to think, I should say, first of education—education of the individual who may or may not become blind, and that is the citizen.

We have to think not only of the undergraduate education of the medical practitioner, but of postgraduate education in which many of the state medical societies and state health departments are interested. In my opinion, these are the two fundamental factors, and the laws probably come second, and not first.

Somebody asked a question about specific legislation this morning. Most of the laws under the Social Security Act, most of the state laws that were stimulated as a result of the Social Security Act, were of the non-specific type and under the legislation pertaining to blindness and aid for the blind. Very definitely that legislation is of the non-specific type which gives state departments of health and state boards of welfare, and so on, power to define blindness; and blindness is not usually defined in the state act. It gives the state departments and state boards power to set up standards—professional standards, even in the field of ophthalmology, at least as it pertains to administration of these acts for aid to the blind. All of those are the non-specific type.

Now, one of the things we hear from state health departments when we talk about prevention of blindness is this: "We are interested in a general program. We cannot be too much concerned with specializing." When I hear that, I think of the private agencies in the field that exist in the interest of a particular program, such as prevention of blindness or some other special field. The public health departments get swamped with problems pertaining to tuberculosis, hookworm, syphilis, and so on. They may forget about prevention of blindness *per se*.

However, the health departments are probably doing more in prevention of blindness in the venereal disease programs and in the emphasis that has been put on reporting and treating ophthalmia neonatorum. I should say, in these two fields, health departments are probably doing more than anyone else, that is, other than the medical profession itself, because, after all, most of the prevention that is done will be done by the medical profession.

Of course, the citizen himself should be sufficiently informed to

go to a doctor, and not to do certain things. The individual and the doctor are the two who will prevent the blindness. The rest of us are simply aiding and abetting in this fight.

I should like to mention the subject of compulsory operations in the field of welfare. We find, where medical advisory committees are in this field, that sometimes they have a tendency to want to compel operations. "You must have an operation or you do not get assistance." That is a practice that is disappearing in the welfare field. I do not know of but two or three states where that is the tendency at the present time. It is something we are trying to get away from.

CHAIRMAN LANSDALE: We shall hear now from our second representative from the field of public health, Dr. Battenfield!

DR. JOHN Y. BATTENFIELD (Director of Epidemiology, Oklahoma State Board of Health, Oklahoma City, Okla.): Mr. McConnell's paper was extremely interesting to me, since Oklahoma's trachoma control program has been recently launched, largely through the stimulation provided by the National Society for the Prevention of Blindness.

To give you some idea of what it is about, briefly, we started with trachoma control as the nucleus, hoping that it might enlarge into a prevention of blindness program at a later date. As you know, probably, trachoma is an endemic disease in Oklahoma, and quite prevalent. At the present time the program consists of a unit of doctors, nurses, medical social workers, clerks, and so forth, which goes from county to county, trying to eliminate trachoma from each county. Of course, this is somewhat of an ideal but since the advent of the sulfonamides, we feel that we have some opportunity to attain it.

I should like to give you just a few figures on six clinics which were held in four Oklahoma counties. Of 1,083 patients examined, 170 were found to have trachoma. Of those having trachoma, 58 had other eye diseases also. Of the total number examined, 117 had other eye diseases alone; and 796 had no eye pathology. Now, that gives us an incidence of trachoma of 15.7 per cent in those examined. Of course, this is a selected group.

The clinics were advertised as eye clinics, and the patients reported to them because they thought they had some eye disease

or because they wanted an examination. I might say to the statisticians here that although this is a very small sample, I think it is representative because I happen to know that this particular percentage of positive trachoma cases agrees with figures available from other clinics that have been held.

At the present time, legal authorizations are adequate for our very modest program, but two very real and very pressing problems have been encountered from the beginning. The first of these has been the difficulty of obtaining adequately trained personnel, particularly in ophthalmology; the second, the limited amount of funds available.

After interviewing practically every well-trained, and many not so well-trained, ophthalmologists in the State of Oklahoma, I have come to the conclusion that it is going to be much easier to obtain the additional funds than it is to obtain properly trained personnel. I think the reason for this lies in the fact that most health departments neither pay a very high salary nor do they offer a young physician an opportunity to do original investigation. I know of no particular reason why the latter situation should exist except that it seems customary to exclude research from many health department programs as a dangerous toy, for medical centers only. Research problems in medicine are increasingly tending toward large numbers of cases, such as may be found in a state program, in order to eliminate chance variation.

I thoroughly agree with Mr. McConnell when he says it is time that the improved techniques of research and education be put to more efficient use through co-ordinated governmental activity.

CHAIRMAN LANSDALE: We are going to hear now from our representatives of the welfare field, and since Miss McCoy represents a state which has been at this job for a long time and has, I believe, one of the largest staffs and state departments in the country working in this field, we shall ask her to lead off.

RUTH B. MCCOY (Director, Prevention of Blindness Service, Bureau of Services for the Blind, New York State Department of Social Welfare, New York, N. Y.): You may be interested to know first how the Prevention of Blindness Service of the Commission for the Blind is set up. In the laws creating the New York State Commission for the Blind, the Commission is specifically mandated "to

continue to make inquiries concerning the cause of blindness, to learn what proportion of these cases are preventable and to inaugurate and co-operate in any such preventive measures for the State of New York as may seem wise." The Commission is further supported in its prevention program by laws and regulations of other state departments, such as social welfare, health, education and labor. Regulations governing communicable disease, medical care, and other health controls, all contribute to the saving of sight.

In general, our prevention efforts have a threefold interest: (1) educational program for the prevention of blindness; (2) medical social case work with individuals; and (3) classification of eye reports, including diagnostic nomenclature for research.

The educational program is varied in an effort to meet the needs of health, social, and teaching groups in each community. This is supplemented by distribution of publications in all phases of prevention of blindness.

Eye medical case work is a function of this Service, where medical and social problems involved must be adjusted in order to bring about satisfactory care and treatment.

Classification of eye cases, based on medical findings, has become an official responsibility since the advent of Public Assistance. Eye cases are now being classified uniformly throughout the State through the centralization of this Service. This Service also maintains a nomenclature of eye diseases by which each diagnosis is coded for study and research.

CHAIRMAN LANSDALE: Mr. Hayes from Kansas will speak next. May I say that Mr. Hayes is on the program at eleven o'clock tomorrow morning, and he has been asked not to steal the thunder from his remarks of tomorrow, but rather give you a little bit so you will want to come to hear him then.

MR. HARRY E. HAYES (Supervisor, Services for the Blind, Kansas State Department of Social Welfare, Topeka, Kans.): The original Kansas social welfare act passed in 1937 gave the State Board of Social Welfare the authority to set up a program, or to co-operate with other agencies in a program, for the restoration of sight, prevention of blindness and rehabilitation. The 1939 and 1941 legislatures appropriated \$75,000 to be spent yearly for these three purposes. The program is set up as growing out of the aid to the

blind program. That is, the eye examination in connection with the application for aid to the blind is the point where cases are found. The restoration of sight program provides medical care—for recipients of aid to the blind who have eye conditions which need treating.

We also have what is called a prevention of blindness program very similar to the restoration of sight program, but which is available to people who are not eligible for aid to the blind. If the applicants are found to have too much vision to be eligible for aid to the blind, but still have eye conditions which need treating, the treatment can be extended under the prevention of blindness program.

I might give you a few figures on what has been accomplished since these programs have started. We have examined 4,203 different individuals. In addition to that, 419 re-examinations have been done. Treatment has been completed under the restoration of sight program on 528 cases and there were 139 cases under treatment in addition to these on November 1, 1941. Of the 528 cases in which treatment was completed, 325 restorations were obtained. The restorations were in various degrees, but in all instances they were sufficient to remove the person from the aid to the blind category.

Under the prevention of blindness program which provides medical care for persons with eye conditions which might result in blindness, 320 cases were completed and 114 were under treatment on November 1, when these figures were compiled.

We attempt supplementary activities to increase the effectiveness of the medical program and to promote prevention of blindness in other fields, such as conducting educational programs for county social workers, nurses, teachers, etc. We have a small state staff in connection with these two programs and it is just impossible to do an adequate follow-up social service job with the staff alone. So the alternative is to stimulate and encourage the county department of social welfare to do the job.

We have also attempted to co-ordinate prevention of blindness activities of other state departments, as was mentioned here this morning. An interdepartmental committee has been organized, which is composed of representatives of the departments of public

instruction, health, child hygiene, labor, and welfare. General education for the prevention of blindness is fostered through the distribution of literature, use of radio time, and the presenting of programs to special groups.

A co-operative working relationship is maintained with the Crippled Children's Commission, which also functions in the eye field as far as congenital cataracts are concerned.

DR. BATTENFIELD: Under the Kansas program, is the operative procedure to be done by any physician?

MR. HAYES: No, the operation must be done by an approved ophthalmologist. We have about 100 men in Kansas who confine their practice to the eye, or the eye, ear, nose and throat, and who are duly licensed in the state. They are approved for the acceptance of treatment cases. Incidentally, the patient has completely free choice of approved physician.

CHAIRMAN LANSDALE: New Hampshire is one of our smaller states which has certainly moved forward in welfare in the last seven or eight years. Miss Sexton will tell us specifically of what they are doing in the field of prevention of blindness.

MISS LOUISE G. SEXTON (Consultant, Sight Conservation Program, New Hampshire Department of Public Welfare, Concord, N. H.): The State Department of Public Welfare administers the public assistance programs and services to children, the blind services, sanatorium aid to the tubercular, veterans' services and aid to those in need of service or assistance because of eye deficiencies.

This program is carried out through seven district offices, through which referrals for service in eye cases are routed to the consultant on sight conservation, who works out of the central office of the department, on a state-wide basis.

In carrying out a prevention of blindness program, the department has the assistance of a medical advisory committee on eye conditions, the members of which are selected by the Department and their appointment confirmed by the state medical society.

The sight conservation consultant in the New Hampshire set-up is responsible for the following:

1. Determining eligibility of and giving assistance to those who apply to the Department of Public Welfare for eye care and who are not receiving any type of public assistance. The de-

partment has a small fund to pay for those who are unable to finance their own care.

2. To advise individual staff workers on the treatment and follow-up of an individual case. This may apply to any one of the following programs: (a) Child Welfare Services (in this service program aid needed by family is financed by the direct relief officials of the family's place of legal settlement or liability); (b) Aid to Dependent Children; (c) Old Age Assistance; and (d) Aid to Needy Blind.

The treatment of the last three can be taken care of by an increase in their grants.

3. All those eye cases referred to the consultant and receiving direct relief. In such instances the relief officials pay for the eye care.
4. The Welfare Department maintains a register of the 695 known blind in the state, which makes it possible for the consultant to do research in the causes of blindness as all Physician's Report on Eye Examination (Form PA-701) blanks are sent to her.
5. Consultant maintains an accumulative analysis of causes of sight deficiency.
6. Since the consultant is responsible for stimulating and effectuating a sight conservation program, much of its emphasis must necessarily be of an educational nature. Consequently, the educational program today has consisted of planned talks and discussions with the following: public health nurses; staffs of the department's district offices; groups of teachers; Parent Teachers Associations; and civic and service clubs.

Literature and posters on eye care are distributed through these various groups or directly to individuals who request them. The consultant speaks at every opportunity. In fact, opportunities to spread knowledge of sight-saving practices are sought constantly. In addition to this, consultation is given on an individual eye case so that the public health nurse, the private agency social worker, the family of the patient or patient, or anyone can receive consultation on the eye condition, on factors which may affect the progress of the disease, and on facilities for medical care.

This has been particularly true of cases brought to the consultant's attention by the preschool and public school nurses and social workers on the Department's staff. Both groups realize very keenly

the need of knowing and doing something about preventing blindness and, therefore, are aware of the need of watching out for cases regardless of the reason for contacting the individual.

In 1938, following a department reorganization made necessary by statutory changes, a policy of placing much emphasis on prevention of blindness was adopted. A first step was the formation of an interdepartmental council, composed of the Boards of Education, Health and Welfare. Health and Education were requested to unite forces with the Welfare Department on a common objective because of a full realization that any progressive attack on the problem of preventing blindness must come through the development of an educational program, a program of education beginning with the doctors, the school and public health nurses.

Doctors are made aware of the problems of the blind in the state through the study of classification of causes of blindness which is based not on the Aid-to-Needy-Blind case load only, but on the register of all known blind in the state, which includes about twice as many as those who are recipients of Aid-to-Needy-Blind.

The findings of this classification offer excellent material for building part of the program of prevention through the Medical Advisory Committee on Eye Conditions and the New Hampshire Medical Society.

The Interdepartmental Council sponsored an Eye Institute, led by the nursing member of the staff of the National Society for the Prevention of Blindness, for the school and public health nurses in the state. This proved to be a very effective way of giving the nurses not only more interest, but also more information concerning the eye. To the school nurses it brought more adequate information in regard to the eye screening in the schools. The importance of the screening done by teachers was emphasized. In one school district a superintendent of schools is willing to carry out this suggestion.

Out of the Interdepartmental Council has grown an increasing knowledge on the part of each state department of the programs and facilities of the other two. There is closer co-ordination in the work of the three, and a feeling of mutual support in their efforts to combat eye defects. A larger number of cases are reached and helped which might otherwise go unnoticed. The Council does not

feel it has exhausted possibilities of their respective programs or of joint endeavors but has a firm foundation on which to build better and more far-reaching practices. The State Department of Public Welfare itself feels that this is true of its own program and that an educational program cannot be overemphasized.

CHAIRMAN LANSDALE: Mrs. Wanamaker represents the field of education, though she insists she is doing a welfare job. In this part of the country we like to look rather jealously at the program which has developed in the state of Washington on all fronts during the last seven or eight years. I think we are very fortunate that Mrs. Wanamaker has come all this distance to tell us a bit about what they are doing out there.

MRS. PEARL WANAMAKER (Superintendent of Public Instruction, State Department of Education, Olympia, Wash.): I want to discuss briefly the program of the State Department of Education. Of course, we don't do it all by ourselves, in the Department of Public Instruction. It is a co-operative affair. The first thing that we need to do is to locate the children needing special eye care. The co-operation of the school public health nurses and the county welfare departments having the referrals direct from the school to eye physicians is utilized in locating these children. We have a school nurse reporting form for that.

Then, in addition, we have the consultation service, which includes the school personnel, the public health nurses, eye physicians, and occasionally parents, who meet with nurses and with the school, and groups such as the Lions Club and other service clubs.

Educational programs were also developed in the teacher colleges in the belief that by this means teachers can become aware of the need for prevention of blindness and for sight saving. We have a course in eye health in the undergraduate teacher training curriculum. In addition, we have resources and procedures for visually handicapped children, with a follow-up of the vision testing programs and provision for special education in sight-saving classes and in the State School for the Blind. We feel that the sight-saving classes, of course, are going to give teachers an awareness of the whole problem and are going to make them better able to help us detect those who need special assistance.

Then, we plan to present the general subject of sight saving, prevention of blindness, eye care, and the common causes of blindness to school personnel, students, and local organizations, through talks provided by the eye physicians' speakers bureau. The colored film developed by our Division for the Blind stresses prevention, and vocational and rehabilitation problems of the handicapped. This has aroused a great deal of interest.

At the last session of the legislature we had a law passed which is specific, not general. Most of our laws have been rather general. But this was a specific one, giving the state superintendent of public instruction the responsibility of providing sight-saving materials and equipment for children in the rural areas. In some of the larger centers we have regular sight-saving classes and have had them for several years; but in the rural areas, where we may have just one student in a class who may need that material, this law gives the state superintendent of public instruction the right to purchase equipment that becomes the property of the state and is subject, therefore, to moving from one school to another. In that way we can have this rather extensive equipment available for those in many areas.

CHAIRMAN LANSDALE: We are going to move to the field of labor and industry and ask Mr. Williams to speak first.

PHILIP WILLIAMS (New York State Chairman, National Committee for the Conservation of Manpower in Defense Industries, Buffalo, N. Y.): We of the National Committee for the Conservation of Manpower in Defense Industries are very much interested in the prevention of eye injuries. We are meeting with some very interesting experiences in our surveys of industrial plants in New York State. Our organization in this state consists of 28 special agents, all of whom have been appointed by the Federal Government on a dollar a year basis. Their job is to assist those plants engaged in turning out defense materials in the prevention of disabling injuries. These men are all specialists in accident prevention, and their part-time services are being donated by the industries for whom they are actively employed. In their surveys of industrial plants they point out to management hazards that come to their attention that are likely to cause injuries of any kind. They are particularly interested in the elimination of those hazards that are responsible for eye injuries.

Our work with the defense industries in New York State has been well received and has proved very interesting. One plant that had been experiencing as many as 500 to 600 eye injuries per year has reduced that number to the low frequency of 18 to 20 per year. This was accomplished through the removal of hazards and the wearing of goggles. It was further determined that the 18 or 20 eye injuries that did occur were all quite minor in nature. Other very large industrial plants, principally mechanical in nature, have been found to be experiencing as many as 500 eye injuries per month, many of them very serious. The work of the special agents, in such plants is definitely showing results. Aside from the human factor involved, the direct cost of the loss of an eye of a skilled mechanic in New York State is about \$5,000, and where there are so many injuries occurring in a plant, the possibility of a total loss of vision, meaning total permanent disability, is not too remote. On such a basis it is usually not difficult to sell management on a program to prevent eye injuries. In addition to pointing out the human factor involved in these serious injuries, we point out the seriousness of the loss of services of skilled mechanics at a time when they are so urgently needed. It is our duty to bring to the attention of management that at least 98 per cent of all eye injuries are preventable; that injuries are wasteful; and that there are ways and means of eliminating this waste.

We usually find that many of the hazards which cause eye injuries can be removed at their source. If this is not possible, the next thing to do is to provide the worker with eye protection. My personal opinion is that all industrial workers should be required to wear goggles, because you never know where or how the next eye injury is going to occur. There have been many instances in industrial plants where goggles have proved to be worth their weight in gold—such instances as splashing of corrosive materials into the face where the wearing of well-fitted goggles was the means of preventing any of the liquid from entering the eyes, thereby preventing blindness. Many such instances are on record, proving the worth as well as the necessity of good eye protection.

There is something more to the eye protection program, however, than just providing employees with goggles. Such protective equipment must be properly fitted by a competent fitter and peri-

odically checked to be certain they are in good condition and a comfortable fitting is maintained. An employee will remove a pair of goggles from his eyes every chance he gets if they fit him so poorly that they hurt him. Nine times out of ten, when you hear a workman condemning the goggles he has to wear, it is because a proper maintenance and fitting program has not been set up, and not because of a prejudiced feeling on the part of the employee. However, the employee does have a very definite responsibility in the eye protection program. He must keep his goggles clean. Goggle cleaning stations located in the shop make it easy for him to do this. He must report any defect or uncomfortable feeling about his goggles to his foreman, who will refer him to the goggle repair man. He must remember that this equipment is given to him for the protection of two of the most important members of his body, and that in order for them to give the maximum of protection they must be worn and kept in first-class condition.

In closing, I would like to say that we of the National Committee for the Conservation of Manpower in Defense Industries will be glad to do what we can in New York State to assist the National Society for the Prevention of Blindness in its most important work.

CHAIRMAN LANSDALE: Thank you, Mr. Williams. We are glad now to have an opportunity of hearing from Mr. Cameron, of Washington.

MR. W. T. CAMERON (Chief Safety Adviser, Division of Labor Standards, U. S. Department of Labor, Washington, D. C.): The contribution which industrial management and industrial safety engineers can make toward the reduction of blindness in this country is not comparable with that to be made by the social and welfare agencies and the medical profession. Industrial accidents are responsible for 8 out of every 100 cases of blindness in both eyes, and for 19 out of every 100 cases of blindness in one eye. So, you see, your job is much more important than ours from the viewpoint of volume. Nevertheless the job of industry in reducing the number of eye injuries is a vitally important one.

First of all, there is no reason why industrial eye injuries cannot be eliminated with greater ease than loss of or damage to eyesight due to non-occupational causes. Industry can establish and maintain control of conditions which produce eye injuries much more

easily and much more effectively than you can control non-occupational conditions.

In the second place the problem of eye injuries in industry is much more important than is indicated by a mere tabulation of numbers of cases. I have already mentioned the percentages of blindness attributable to industrial accidents. The comparison of the number of industrial injuries involving the eyes is even less impressive—7 out of every 100.

But there are other factors which make the problem very serious. In the first place eye injuries are more costly than the average injury, more costly in compensation and medical expense, more costly in the loss of time involved. And time is one thing we cannot afford to lose in this emergency. Then, the type of worker most likely to suffer an eye injury is exactly the type we can least afford to lose at this period in our nation's history. An analysis of eye injuries occurring in Minnesota and Illinois during a recent year revealed that a majority of these injuries occurred in metal and metal products manufacturing.

Legislative and enforcement activities of various governmental units have not played much of a part in the work of reducing eye injuries in industry. Voluntary efforts of industry, stimulated by such groups as your own Society, the National Safety Council, state and local safety councils and similar groups, have accounted for most of the gains that have been made.

The major contribution which the states have made has been the enactment of workmen's compensation laws. Such laws make injuries expensive to management; they make safety a profitable activity and stimulate management interest in the work of preventing accidents.

Only 22 of the 48 states have basic safety and health laws, and only 18 of these states have power to set forth specific and detailed standards amplifying the general term "safe and healthful conditions." Most of these 18 states have no specific requirements on eye protection. A number of states are using the American Standards Association head and eye protection code as an advisory standard, but not as a regulatory standard. Some states include provisions on eye protection in certain of their industry codes, notably the foundry code. A foundry code generally includes an item on eye protection.

The whole subject of eye protection in its relation to national defense is going to be discussed at some length at two-thirty tomorrow afternoon. You will get more detail at that session.

CHAIRMAN LANSDALE: Now we are going to hear from the two people who speak primarily from the standpoint of voluntary agencies. Miss Carpenter is going to talk from the standpoint of the State of Pennsylvania and the State Council.

MISS EVELYN M. CARPENTER (Director, Philadelphia Committee for the Prevention of Blindness, Inc., Philadelphia, Pa.): Authorization for prevention of blindness work in Pennsylvania came about by legislative action in 1925 but the program was not initiated until late in 1929. At that time very little information on the causes of blindness was available—but enough to convince us that we had a lot of fence to whitewash and that we needed all the help we could assemble to do it. Beyond the fact that our budget was limited, we believed that the use of service contributions other agencies might make would speed awareness to the need for, and the possibility of, establishing measures for the control of blindness.

To that end we sought out services which might be developed through the four state departments: health; welfare; public instruction; and labor and industry. The Department of Health proved to be a fertile field in which to work and, in turn, bore fruitful services through the bureaus of public health nursing, venereal disease, school medical inspection, and maternal and child health.

The Department of Welfare, which houses the Council for the Blind, provided fewer avenues through which prevention of blindness might be projected. But the Bureau of Mental Health and the Division for Institutions were able to make certain prevention of blindness measures an integral part of their program. The Department of Public Instruction co-operated actively through its bureaus of buildings, school nursing, and the division of special education.

The Department of Labor and Industry made a great and permanent contribution to the control of blindness from industrial accidents. Through the bureaus of rehabilitation and compensation all perforating injuries to eyes were reported to the Council for the Blind for investigation and follow-up, to secure adequate medical

care and surgery if it became necessary to prevent involvement of the good eye. This action was gratifying since the records, limited though they were, showed considerable loss of all sight from sympathetic inflammation.

The Council for the Blind interpreted its objectives to private, public health, and social welfare agencies and, through them, found further service contributions which were put to work on prevention of blindness—then, in Pennsylvania, a new ramification of a public health program.

Twelve years ago \$10,000 was earmarked for prevention of blindness. It included personnel, travel, and equipment. Soon double that amount was working by way of the integrated services I have mentioned.

After four years of demonstration with private agencies the Pennsylvania Association for the Blind, an agency financed by public funds and voluntary contributions, and having branches in all populous areas in the state, entered the field. A new department for prevention was created in the Pittsburgh branch, and a qualified person was employed to develop it. Since then, that Association has established several similar departments which function effectively.

Six years ago the first independent prevention of blindness agency in Pennsylvania was organized in Philadelphia. It was an offshoot of the State Council for the Blind and complemented that public service through its local, non-political set-up. Likewise, the Council complements the Philadelphia Committee for Prevention of Blindness through its state-wide position and relationship to the state legislature.

This co-operation worked well for Pennsylvania at a time when the prohibitory fireworks bill and the “babies’ sore eyes” bill were in the process of becoming laws. In our ignorance we believed “administration measures” always came to enactment, but learned, to our dismay, that we were wrong. When we reversed the operation, and the Philadelphia Committee for Prevention of Blindness sponsored bills and assembled state forces for their support and the Council rendered close range assistance, they passed.

The 1941 session of the state legislature granted an appropriation to the Council for the Blind of \$60,000 to provide medical care and other services to prevent blindness. For the biennium \$125,000

had been sought, but we were gratified to know that the general assembly had, at last, recognized prevention work and was willing to appropriate a specific sum to carry it on.

So from a beginning of \$10,000 taken from the appropriation to the Council for the Blind, Pennsylvania's public and private agencies are now spending annually better than \$80,000 to keep its people seeing.

Measured in terms of public awareness, public opinion, public effort, and skilled services, plus the falling off of certain causes of blindness among new applicants to schools for the blind and for blind assistance, perhaps we are justified in feeling a little bit cocky.

CHAIRMAN LANSDALE: Miss Hayden, as you all know, represents a state voluntary agency.

MISS AUDREY M. HAYDEN (Executive Secretary, Illinois Society for the Prevention of Blindness, Chicago, Ill.): I expect you are all hoarse from listening. I feel sorry for you, but, like Al Jolson, I would like to rise and make a few remarks in defense of my own client, which is a small private organization devoting all of its time to preventing blindness on a state-wide level.

I think that there are several advantages to this sort of a set-up and probably you don't have to have them pointed out to you. One is the power of concentration. You all know that you can start a mighty fine fire by putting a powerful glass on top of a piece of paper and letting the sun's rays converge on that one spot, and that is what an agency devoting all of its efforts to prevention of blindness can do in a state. I am as sure of that as that the sun shines.

Another thing is that it can correlate efforts. The weak spots in a prevention of blindness program that drop between the departments can be filled in by a private agency. I don't know how it is in other states—all I know is what I read in the papers; but every time a political change happens in Illinois, we are in a perfect "tizzy" for six months afterward, and if the Illinois Society for the Prevention of Blindness weren't around to build up the fences, I don't know what would happen to prevention of blindness in our state. Over and over and over again in the last 14 years I have seen everything shiver and shake at the end of a political change—and that is where a private agency comes in. I thought for a while

this morning that I had come to the wrong funeral, because there was so little representation of private agencies here.

Since we are limited for time, I am going to take up some of the things we have done in co-operation with the various departments, and I hope you will forgive me if I read them.

I. Co-operative Work with the Department of Health.—Although we put the ophthalmia bill through the legislature, we have worked on the enforcement of that law with the Department of Health. Immediately after the passage of the law we started checking the birth records and taking off the deviations that show on the prophylactic line.

Now, in 1938, of 117,000 births, there were 1,840 birth records that had no fill-in on the prophylactic line; in 1939 there were 1,500; last year there were 824. How do you suppose that happened? That happened because of co-operation between a private agency and a public one. We did the checking and handed our results on to the Board of Health, and, believe me, they took action. Consequently, there is an improvement right straight along on the enforcement of the law.

In 1938 there were 917 records that showed the use of an unapproved prophylactic; in 1939 there were 580; last year there were 280. That decrease is not accidental, you know.

In 1938 there were 1,044 birth records that showed insufficient information. They were too vague. The next year there were 545; last year there were 179. This enforcement of the law is reflected in the dropping ophthalmia rates in our state.

Co-operating with us, the State Board of Health has adopted permanently the National Society's form on ophthalmia, and we get duplicate copies on that. They also have given standing orders on ophthalmia. Dr. Cross told me last week that he sent a standing order out to the southern part of the state and told district health officers to go to their county medical meetings and ask why they had *four* cases of ophthalmia in the southern 17 counties of the state last year.

They have a little pamphlet called "Thank You for My Eyes," written by us and printed by them, which is sent to every man who delivers babies in the state, and which tells how to prevent ophthalmia and the proper way to fill in the prophylaxis line on birth certificates.

We are now working on having something done through the State Board of Health to include on the birth record the result of the Wassermann test. Right this minute the State Board of Health is doing what we formerly did, that is, hospitalizing downstate babies; and the last order that went out to district health officers shows exactly what to do in every case so that the babies will get to Cook County Hospital.

II. Work with the Department of Public Welfare.—On sight-saving classes we work jointly with the Department of Public Welfare and the Department of Public Instruction. It isn't easy sometimes to work with two departments on the enforcement of the law, but the fact remains that we have not had to change the sight-saving law, and whereas there were only 16 sight-saving classes in Illinois in 1930, there are now 91, scattered over Chicago and 35 towns down state.

The appropriations which we take care of at the request of those two departments have risen from \$26,000 in 1929 to \$389,000 last year. Now, that is money that does not come to us, but the state departments would prefer to have us ask for it, because they say the legislature trusts a private agency, knowing they are not going to get anything out of it. We can walk in and ask for more money than they could and we always get it.

Speaking of the bad things that can happen in a political change, there was a wonderful trachoma survey made back in 1920, right at the end of Governor Lowden's administration. All the findings were handed over. Nothing was ever done about them. So, in 1930, we went after it again. We made the same demonstration, and in 1934 we cajoled Governor Horner into giving us \$5,000, and we did that as a private agency. He gave it to us from the fund for the control of communicable diseases, and we matched it with a like amount from our budget. All that trachoma work was started as a demonstration by the Illinois Society, but soon we had the Department of Welfare in. We legislated a bill through that the Department of Welfare refused to sponsor because they said it would endanger their own appropriation.

We got a \$45,000 appropriation in 1935 for prevention of blindness through the control of trachoma in southern Illinois. Then we went to the WPA and asked them to put in bus runs that would

make treatment available to people over the 900 square miles of the trachoma belt. They said they could do it only for a little while. We said, "All right, do it a little while, then we will get the Department of Welfare to put it in their budget the next time."

It meant changing the budget from \$45,000 to \$86,000, and that takes lots of nerve, but we have it, because a private agency can afford to have a lot of nerve—just an awful lot of nerve. There is no law against it. There sometimes is a law against official agencies having too much nerve.

So it seems to me that a private agency can do many things that a public agency, by its very nature, can't do without laying itself open to criticism. It seems to me the role of the private agency is to fill in the chinks; to see that the program doesn't suffer on any one front; do the things in the prevention of blindness field that can't be taken care of in any state department; always to see that state departments do their duty; to see always that they give a break to prevention of blindness, because, as some other speaker on this program has said, they have a million other things to be worried about besides prevention, and somebody has to be around making recommendations. (Of course, this agency may be as popular as a skunk at a lawn party, but who cares about popularity if blindness is prevented?)

CHAIRMAN LANSDALE: I have been instructed to close this meeting promptly because of the sessions which follow. I would just like to say one word along the line of Miss Hayden's remarks, because I happen to be a person who has spent more of his employed time on governmental payrolls than on those of private agencies. I happen to be engaged on a job at the present time in a private agency, and the reason I was attracted to that job was because of the concept which that agency had evolved. I may say that concept was evolved by a layman who is the president of the organization and not by the professional staff.

I was at a meeting the other day with a group of public officials who were complaining that many voluntary agencies today were tending to lean on the public agencies rather than to lead. I think our voluntary agencies today must reappraise what they are doing against the advances in the program which have been represented by these speakers this morning from the public field. I should like

to give you a little formula which the Community Service Society worked out as a basis for its program for the years ahead.

The Community Service Society goes back to 1843, when the Association for Improving the Condition of the Poor, one of its predecessor agencies, was founded. The program is threefold as the Society faces the future, made up of service, training, and research. The service program is to be broad, is to include fields that need to be covered, and is to be reappraised and re-examined periodically. It is to emphasize demonstrations or "filling up the chinks," as Miss Hayden says. Second is training, that is, training of workers to carry out the programs both of private organizations and of public agencies. The training program is represented by the New York School of Social Work. Finally, there is research, which is the particular job I am responsible for at the present time. As we look back in history—and we have gone back first to see what the precepts of the organization have been—research is nothing new. Back in the early part of the century we used to call it "improvement of social conditions." The society as a voluntary agency has a responsibility to re-examine its own program, to study governmental programs. Sometimes the governmental agencies themselves do not have the funds to make studies and sometimes, when circumstances suggest it, some independent agency needs to make an inquiry.

Now that threefold program, I want to repeat, was the conception of a layman, a young man, Mr. Barklie Henry, who got it from his experience as President of the New York Hospital and carried it over to a social agency. I think it makes a forward-looking formula with which a voluntary agency can face the newer conditions of today. I shall repeat it: service, training, and research.

The Sight-Saving Review

Volume XII

Number 2

June, 1942

Table of Contents

	PAGE
WAR AND EYE INJURIES, Olga Sitchevska, M.D.....	83
A VIEW OF PREVENTION OF BLINDNESS IN RELATION TO PUBLIC HEALTH, Eleanor Brown Merrill.....	90
ANISEIKONIA, Homer B. Field, M.D.....	98
SIGHT RESTORATION IN INDIANA AS CONDUCTED BY THE STATE DEPARTMENT OF PUBLIC WELFARE, C. W. Rutherford, M.D.	103
CHILDREN'S SERVICES IN SIGHT CONSERVATION, Laura E. Dester.....	110
OPHTHALMIA NEONATORUM, J. Vincent Flack, M.D.....	120
DEMONSTRATIONS OF MEDICAL SOCIAL WORK IN EYE CLINICS, Elizabeth G. Gardiner.....	125
NEWS OF STATE ACTIVITIES.....	136
NOTE AND COMMENT:	
New Army Policy in Visual Standards.....	148
Light Colors Painted on Machinery Improve Seeing....	148
Former REVIEW Editor Awarded Medal.....	149
Farsightedness and Visual Clarity.....	150
Explosives Manufacturers Warn Against Blasting Caps..	150
American Recommended Practice of Industrial Lighting.	150
Test of Loss of Vision.....	152

	PAGE
CURRENT ARTICLES OF INTEREST.....	153
BOOK REVIEWS, by Charles P. Tolman and Elizabeth G. Gardiner.....	155
Briefer Comment.....	158
CONTRIBUTORS TO THIS ISSUE.....	160

War and Eye Injuries*

Olga Sitchevska, M.D.

TIMELY word on eye injuries on the battlefield, air raids and eye injuries, and poison gases and eye injuries.

WAR eye injuries may be due to: (1) casualties in the battlefield; (2) air raids; and (3) gas injuries.

Eye Injuries on the Battlefield

External injuries, like lacerations of the lids, conjunctiva and cornea, are trivial in themselves, but meticulous early repair and suturing of the lids are very important, as a terrible looking lid, sometimes torn away from the eyeball, may become good looking and normal in function, and thus plastic repair later on can be prevented.

There are non-perforating and perforating injuries to the eyeball itself. The non-perforating wounds by flying particles may cause: (a) hemorrhage into the anterior chamber (hyphema), which indicates an intra-ocular injury; and (b) vitreous hemorrhage. The latter type of hemorrhage frequently absorbs completely, but if it is extensive, it may cause a detachment of the retina while shrinking and pulling the retina away from its attachment. A hemorrhage in the retina is also possible, and if it occurs in the macular region, the trauma to the retina cannot be remedied and loss of central vision results. Concussion injury can also cause a hole in the macula and opacity at the posterior pole of the lens of a rosette-shaped form, or luxation of the lens. Rupture of the choroid and the tearing away of the iris from the ciliary body (iridodialysis) can also be caused by concussion. In all cases of

* Presented at the clinical conference of New York Infirmary for Women and Children, May 18, 1942.

hemorrhage, a complete rest in bed is imperative; and atropine and a bandage to the injured eye (sometimes also to the sound eye) are necessary until the hemorrhage begins to absorb.

Mr. Law of England reports that he had seen in Moorfield's Hospital not only the first eye casualty, but the first casualty of any kind in England—it was an intra-ocular foreign body, a fragment of a small hand grenade which hit the eye of a soldier at the Maginot Line in October, 1940.

The perforating wound in war is due to a foreign body which may or may not be retained in the eye. Doherty says: "The most frequently found foreign body in the orbit in the first World War was the shell fragment which, due to its jagged contour, produced terrible deformity—the optic nerve might be severed and the papilla lacerated as if torn away."

The danger in dealing with a perforating injury is the possibility of infection, and chiefly that of sympathetic ophthalmia. Sympathetic ophthalmia consists in a plastic iridocyclitis which develops in the second eye as a result of perforating injury in the first. The injured eye is called the exciting eye and the other, sympathetic. There are two rules to follow: (1) If the injured eye is red and tearing from 4 to 6 weeks after the injury, it should be removed; (2) if sympathetic ophthalmia has developed in the other eye, it is advisable to leave the exciting eye, as at times it retains more useful vision than the sympathetic eye. My own experience in Russia indicated that the danger of sympathetic ophthalmia is not as great as we think. During the Russian Civil War a number of children sustained eye injuries while playing in the fields by finding shells which exploded. Since we were short of instruments, many of the injured eyes were not removed and we saw very few cases of sympathetic ophthalmia.

The tolerance of the eye to various kinds of intra-ocular foreign material varies, and certain tissues of the eye will react differently to foreign bodies. The iris and ciliary body react more seriously to injury than the lens and vitreous. Copper usually produces a violent inflammatory reaction, and iron produces siderosis. The soluble iron hydroxide has a predilection for the epithelial tissues of the eye and stains them into blue-green; if the neuro-epithelium is involved, the vision becomes impaired. Wood and lead, which

are not magnetic, always present more of a problem than magnetic foreign bodies which can be extracted with an electromagnet, particularly if the foreign body is diagnosed by x-ray and is plotted as to the exact size and location. Glass can be tolerated by the eye fairly well.

Air Raids and Eye Injuries

The indiscriminating bombing of cities in England has produced many injuries to the eye. The *British Journal of Ophthalmology* (April, 1941) reported that, during one night of intensive air raids, at one large hospital in London there were, between midnight and 5 A.M., 280 corneal and conjunctival foreign bodies among members of fire service. Most of the foreign bodies were charred material.

Mr. O. M. Duthie reported at the Congress of the British Ophthalmological Society in 1940 that "ruptures [of the eyeball] had proved the most frequent of all serious injuries. Many cases of rupture, especially those due to flying glass, were virtually untreatable." E. B. Alabaster, at the same Congress, stated that 21 of 100 cases of eye injuries after air raids showed penetrating wounds caused by metal or glass.

Glass injuries are the chief concern in air raids. All glass must be picked out of the conjunctival sac. It is very difficult to see glass even with the slit-lamp and more difficult to extract it. Fortunately, in many cases glass works itself out even from deep wounds. If a piece of glass is lodged in the eye and shows no tendency to come out, the only indication for an operation is interference with vision. Mr. T. M. Tyrrell discussed the subject of eye injuries at the Ophthalmologic Section of the Royal Society of Medicine. He stated that a patient with a badly injured eye can be left alone for 24 hours without danger. The shock and restlessness of the patient with perforating injuries wear off by that time and he is in a better position to stand an operation. He had seen about 20 severe glass injuries, of which he had to remove 10 eyes because they were so badly damaged; in the others the glass perforated the sclera or cornea but the glass came out by itself; in some cases he had to do an iridectomy for a prolapsed iris, and a conjunctival flap to prevent infection.

In air raid casualties, the conjunctival sac is usually filled with mud and dirt. The sac should be irrigated thoroughly with a mild antiseptic solution for hours until it is clean before any operation is attempted.

Sir Richard Cruise (Law) devised a vizor for the protection of the eye, made of light weight duralumin and involving no interference when not in use. It can be used not only by soldiers, but also by civilians, air raid wardens, and firemen. It cuts off the visual field a little, but it gives a great sense of security. Sir Richard states that at least 50 per cent of the eye injuries could be prevented.

The question of supplying the soldiers and exposed civilians with non-shatterable glasses instead of the ordinary lenses is an important one, but it has not yet been considered by the authorities.

Measures have been taken in England to safeguard against the menace of flying glass; a transparent liquid is painted on the windows which prevents them from breaking. The New York Museum of Science and Industry shows, in a moving picture, the way the glass cracks but does not shatter under heavy impact, and sharp pieces don't fly through the air. Some department stores here sell this liquid. One quart, costing \$3.50, will cover 80 square feet.

Gas and Eye Injuries

Lacrimators or tear gas produce profuse tearing, swelling of the lids and, at times, exfoliation of the corneal epithelium; but all these lesions heal quickly. Chlorine and phosgene gases produce a conjunctivitis of varying intensity, but mustard gas (dichloro-diethylsulphide) produces the most evil effect and its action is remarkable in its delayed nature.

In "The Official History of the War" (London, 1923), it was recorded that from 75 to 90 per cent of all mustard gas casualties presented some ocular involvement. About 25 per cent of all eye gas burns result in severe conjunctivitis and keratitis. The injury may be produced either by the vapor or by the actual liquid. (As stated by Hughes, Ida Mann of London, the famous ophthalmologist, produced experimental destructive corneal lesions by instillation of as little as 0.0004 c.c. of liquid mustard in rab-

bits' eyes and by exposure for 15 minutes to a concentration of 1:20,000 of vapor.)

A conjunctivitis is produced in two or three hours after exposure, the maximum effect of smarting, tearing, pain, photophobia, and swelling of the lids being attained in 24 hours. The severity of the condition depends upon concentration of the vapor; and the danger is greater where there is poor ventilation—basements or poorly ventilated lower floors (gas is heavier than air and it settles in low places).

The period of delay of effect is shorter in the eye than in the other parts of the body. The roughening of the cornea or the orange-peel appearance may occur early, so that advantage can be taken in doing something about those people affected. If the liquid mustard gets into the eye, the irritation is marked and there is even danger of inflammation of all the structures or tissues of the eye (panophthalmitis).

The mechanism of the action of mustard gas is not clear. Most likely the toxic action is due to liberation of hydrochloric acid by hydrolysis. The patient burned by mustard gas is put out of action because of severe conjunctivitis; in about 15 per cent there is a dead white band of burned conjunctiva between the lids, with a marked chemosis. This white band is due to coagulative edema, which compresses the vessels and impairs the circulation and nutrition of the cornea. The other parts of the conjunctiva and lids are markedly swollen, and a blepharospasm is present so that it is very difficult to open the lids.

The cornea is involved in about 10 per cent of all mustard gas burns, and convalescence requires about two or three months. There were cases of keratitis seen as late as 14 years after the war ended which were due to mustard gas damage. The late keratitis arises from a sclerosing action on the conjunctival tissue, which, by compression of the vessels, interferes with the nourishment of the cornea, a process which may take years (Law).

Prophylaxis in Eye Injuries from Gas.—The only prophylactic measure is to put on a gas mask as soon as the faint mustard or garlic odor is detected. Some experimenters showed that in rabbits saturated with ascorbic acid the action of mustard gas was minimized.

The treatment of mustard gas injuries is symptomatic. The immediate irrigation of the eyes with normal saline, sodium bicarbonate, 1 or 2 per cent, or boric acid solution, 2 per cent, is helpful; and some believe that dichloramine T, $\frac{1}{2}$ per cent in chlorinated paraffin, is a good neutralizing solution. Cod liver oil will prevent adhesions (symblepharon) later on.

If the cornea is involved, 1 per cent solution of atropine or ointment should be administered. *No bandaging of the eye should take place*, as closing of the lids will aggravate the burn because of: (1) the accumulation of tears and secretion; (2) an increase of pressure on damaged and necrotic tissue; and (3) elevation in the temperature of the cornea.

The relief of severe blepharospasm can be obtained with a drop of pontocaine, as it is important to open the lids and reassure the patient that he is not blind. Cocaine should not be used because the sensitivity of the cornea is diminished and exfoliation of the corneal epithelium may be produced. Dark glasses should be worn, but they should be removed as soon as the patient feels better in order to avoid symptoms of neurasthenia.

Zinc sulphate, $\frac{1}{4}$ per cent, with ephedrine, are to be used in the period of convalescence. Contact glasses have been advised for use in cases of keratitis.

Hysterical blindness is not uncommon in wartime—a shell-shocked, wounded or blasted person is likely to complain of blindness. It may occur without physical injury to the eye; there may be functional blepharospasm, which can be followed by hysterical amblyopia.

Night-blindness may occur on a neurotic basis. "The blackout at present in England is being overworked as a cause of imagined injury to sight or eyestrain," according to H. M. Traquair. The blackouts are quite harmless to the eye unless the person has a definite vitamin-A deficiency.

Bibliography

An Atlas of Gas Poisoning. London: His Majesty's Stationery Office, 1938.

Doherty, W. B. "Some of the Most Important Ocular and Orbital Wounds in War." *American Journal of Ophthalmology*. 25:135. February, 1942.

History of the Great War, Based on Official Documents. Medical Services; Diseases of the War. London: His Majesty's Stationery Office, 1923. Vol. 2.

Hughes, William F. "Mustard Gas Injuries to the Eyes." *Archives of Ophthalmology*. 27:582. March, 1942.

Law, F. W. "Ophthalmic Injuries in Warfare." *Guys Hospital Gazette*. 55:15. 1940.

Traquair, H. M. "War Injuries and the Eye and the General Practitioner." *Practitioner*. 145:282. 1940.

Tyrrell, T. M. "War Injuries of the Eye." Foreign Letters. *Journal of the American Medical Association*. 118:1311. April 11, 1942.

A View of Prevention of Blindness in Relation to Public Health^{*}

Eleanor Brown Merrill

THE author points out that the prevention of blindness program, though centered under one agency for sound administration, must utilize all lay and professional resources, all voluntary and official agencies in the state having a common understanding of the problems of sight conservation.

TO ONE who spent a large part of her childhood in West Virginia it is indeed a pleasure to have the opportunity of participating in this conference and of meeting those who represent progress in the state health program. As I look back upon the summers on my grandmother's farm in Greenbrier County, certain things stand out with clarity—a swimming hole set in the shaded turn of Meadow Creek, the blackberry patches laden with glistening fruit, the fragrant campfire, the songs and laughter; above all, the restful sweep of meadow and the glory of mountain ranges. Of minor importance to me was the fact that for three successive summers typhoid fever entered into the family group—recognized now as a natural consequence of the children's assuaging their thirst from a well near the stables. The incidence of tuberculosis among the families who lived a half mile or so from the main house carried, too, no real significance in the mind of one who reveled in the freedom of country life, untrammelled by rigid health regulations.

It would be difficult fully to acknowledge the value of the kind of life offered in the Greenbrier County of those days—a life that called for hardiness and adaptation to the inconveniences of a fairly remote locality, while filled with satisfying companionship

^{*} Presented at West Virginia State Health Conference, Martinsburg, West Virginia, May 11, 1942.

and enjoyment of uncomplicated native resources. It would be equally difficult in this day to ignore the apparent lack of health provisions which in more recent contacts with the state are seen to be increasingly effective.

Because of this early experience in West Virginia, word that the State Department of Public Assistance expected to develop a comprehensive program for prevention of blindness was received with enthusiasm, and the National Society for the Prevention of Blindness welcomed the opportunity to join with the Department's director in considering possible steps toward this end. Certain recommendations have been presented, and it is my understanding that during this conference or shortly thereafter announcement will be made by a Department representative of the anticipated program. It is the present speaker's assignment to discuss those phases of the state prevention of blindness or sight conservation activities which relate particularly to the public health program and either directly or indirectly come within the functions of state health administration.

First, let me say that prevention of blindness cannot be looked upon as an isolated movement, nor achieved to any appreciable degree through sporadic and unrelated attempts. Successful accomplishment depends on the co-operative efforts of practically all existing agencies concerned with human welfare, each of which must assume its share in working towards a common goal. Naturally, many aspects of such a program come within the realm of public health.

Let me be specific and speak in relation to West Virginia. It happens that this was one of the first states to enact a law requiring use of a prophylactic in the eyes of babies at birth. Years ago in the National Society's office, when other sections of the country were considering similar legislation, our inclination was to use the West Virginia bill as a model, providing as it did for compulsory reporting of cases, use and distribution of a prophylactic, reporting on the birth certificate, and provision of medical care for indigent cases.

In the first year of which the National Society has record of children in the schools for the blind at Romney, the percentage of pupils enrolled whose blindness was due to ophthalmia neonatorum

was 22. The latest count, taken for 1939-40, shows 7 per cent of pupils in both the white and colored schools blind from this cause, with no new entrant during the year. This is a striking decrease, but intensification rather than lessening of effort must be had if the good accounting is to be maintained, and such might well include a further strengthening of the law which would compel investigation of ophthalmia neonatorum cases by health authorities in order to place the responsibility for its having occurred. In the year 1936-37, the amount of prophylactic distributed in this state was sufficient for 26 per cent only of the live births. Does this fact indicate the need for further education of both professional personnel and of the public?

With regard to prenatal factors in relation to eye health, legislative provisions have also an interesting significance. A recent classification of causes of blindness, which used findings among 20,000 adults in 10 states and among pupils in schools and day classes for the blind, lists 10 per cent of the children and 51.4 per cent of the adults as suffering from blindness of prenatal origin. The incidence in West Virginia among children is slightly above, and among adults appreciably below, the average. Existence of a law compelling premarital examination for syphilis leads one to believe that these percentages in future years may be considerably reduced; it is to be hoped that provision will also be made for thorough, compulsory prenatal examinations and for such correction as may be possible of transmissible or otherwise dangerous conditions.

The latest report of the West Virginia State Health Department calls attention to the program established under its Venereal Disease Bureau, made possible by what is apparently a very fine co-operative relationship between county health units, the Department of Public Assistance, state and county medical societies, private physicians, graduate nurses and public health personnel. As this program progresses, and data in relation to the diagnosis and treatment of venereal disease become available, facts will no doubt be disclosed as to the incidence of eye involvement. It will be interesting to note these in comparison with figures gathered from studies elsewhere and in relation to the general estimate that 12.7 per cent of blindness in the United States is due to syphilis. Cer-

tainly, there is opportunity to conserve vision through activities directed at the prevention and cure of syphilis, and this is an aspect of the program which comes very definitely within the province of public health organization. Its urgency is accentuated at present with the upspringing of large and congested industrial centers and concentration near army camps. Reports indicate that there has been a decided increase in the incidence of syphilis and gonorrhea in the neighborhood of some of our war production plants, in spite of many preventive efforts; this fact should not be accepted as discouraging, however, but rather as a challenge to those of us who can see the remedy and have the ingenuity to plan and carry through effective control measures.

In the past year or so there has been a vast increase of industrial activity in West Virginia. To see former residential and farm areas now taken over by various kinds of manufacturing brings a vivid realization of what "all out for production" means to a community and of what must be the many problems involved in such change. "More planes, more tanks, more guns . . . more ships to carry them" is the slogan of the National Safety Council in its campaign just started to prevent accidents and conserve manpower; unless the Council is successful in its drive and in the objective of securing help from every volunteer and public agency concerned, a slogan equally appropriate through the days to come will be: "More hazards, more accidents, more ill health, more blindness." That seems a strong statement, but already the accident rate has risen sharply since 1940; the Bureau of Labor Statistics (United States Department of Labor) has stated that with an 11 per cent increase in employment an increase of 29 per cent in accidents has been noted. A logical supposition is that a steadily growing frequency of eye accidents will follow unless a very aggressive counteractive program is instituted. Recently, the National Society for the Prevention of Blindness undertook a fact-finding survey to determine the extent to which measures are being adopted for conservation of sight in industrial plants. The summary of findings from industries reached so far, small in number but representing some of the large, well-organized companies in the United States, shows that, while conditions relating to general safety are quite fine in their provision for medical supervision, first

aid and nursing service, protective equipment and general education, provisions relating specifically to eye health are far from adequate. We can be quite sure that conditions in smaller plants throughout the country are much less favorable and that in them eye health receives, proportionately, even less emphasis.

The protection of eyesight in industry is more than a question of safety equipment and first aid. As brought out by the National Society's findings and other current studies, there is great need for emphasis on pre-employment and periodic eye examinations which will insure the finding and correction when possible of disabling conditions; there is need for such analyzing of skills and physical limitations as to permit placement of those with impaired vision in jobs where the particular handicap will not be a detriment; there is need for medical and nursing care of eye injuries; there is need for raising the standard of illumination, for establishing proper hygienic regulations, for creating sound eye health habits in management and employees alike. In all these aspects of a safety program, state health departments, through their bureaus of industrial hygiene, have, of course, an important part and their influence will be felt in bringing about a betterment of procedures within industry and a community understanding of the matter. In this connection reference is made to an interesting project undertaken by a large concern, with which the National Society is in touch. The company plans to provide each of its employees with an attractively prepared pamphlet carrying instruction on eye health practices both within the plant and at home. Such a message, it is believed, will bear special weight because of its significance to the whole family.

Report of the Committee on Conservation of Vision to the State and Provincial Health Authorities of North America in March called attention in particular to programs for the control of trachoma in Arkansas, Illinois, Indiana, Kansas, Kentucky, Missouri, Oklahoma, Tennessee, Virginia and West Virginia. In some cases such programs are being carried through the establishment of special units, in others through existing agencies—all directing their energies towards locating every case of trachoma and bringing it under treatment. One of the brightest spots in the prevention of blindness picture today is the opportunity given through the use of

sulfa-derivatives to arrest the progress of trachoma and effect a cure in early stages of the disease. A dreaded cause of blindness for many years, and one that, under present shifts in population and congested areas, might have meant almost certain increase in the incidence of visual loss, no longer carries so grim a threat; however, by very reason of the increased security through scientific measures, trouble may arise through a lessening of effort, and in the report just referred to all health officers are warned to be on the lookout for the outbreak of trachoma in unexpected places.

As one reviews in some detail these progress reports of trachoma control, it is heartening to see note in one state of a marked drop in the number of new cases and reduction in the amount of intensive treatment for old chronic cases; in another, a decrease in the number of patients requiring hospitalization; in all, satisfaction with the sulfanilamide treatment—and everywhere an opportunity, through the examining centers, stationary and mobile, to locate trachoma in its early stages and to save sight. Moreover, opportunity is seen through joint co-operation of the several responsible agencies and co-operation of local groups to so broaden activities of these diagnostic services as to include attention to eye conditions other than trachoma. In the largely rural states, particularly, this would seem a logical and sound development, with possible integration of such services into the regular state medical treatment program.

It should not take a war to make us all conscious of the importance of good eyesight and of an apparent laxity which shows now through findings in the selective service examinations. The wide extent of defective vision among men otherwise fit for military duty has surprised many. It necessitated lowering of restrictions after the early induction periods in order to allow recruiting of a larger number as required. In the classification of registrants through March 15, 1941, in the New York City area, eyes stood first among the fourteen medical reasons for assignment to limited military service only, and fifth among the medical reasons for rejection. Included in the former group are those having remediable conditions, and a report from Col. Samuel J. Kopetzky, Chief of Medical Division under the Selective Service Administration in the New York City area, tells of the program of rehabilitation started in

August, 1941, through co-operation of the local Association of Medical Social Workers and of the medical profession, with a view to obtaining needed treatment, correction when possible, and re-classification. Among those disqualified for military service of any kind we find 3.13 per cent of the 115,569 examined; in both groups appear conditions that might have been prevented or checked in the early stages. Such findings—and in reports some months ago for the whole United States eyes stood second in reasons for rejection—present a challenge to those of us concerned with prevention of blindness and sight conservation, and they provide a basis for action through health, educational and welfare services, and also through voluntary effort, the pattern for which has perhaps never before been so clearly defined.

I have been asked to suggest how a prevention of blindness program fits into the health services of a state, or, in other words, what aspects of a prevention of blindness program are related to a state's health services. It would be easier to name where such relation does *not* exist for, to repeat a point made earlier, results can be achieved only through a wholehearted working together and a sharing of responsibilities. Certain functions that fall specifically within the realm of health administration have been briefly discussed; others might be added, as, for instance, the tasks of seeing that every midwife is trained in proper care of the eyes at birth; that all communicable eye diseases are reported and control measures taken; that laboratory and statistical data are complete; that means are developed for discovering visual defects in preschool children and for securing correction at an early age; that school eye health services are adequate, with nurses trained in case-finding and follow-up procedures; that education of public health nurses includes special instruction in eye health; that active part be taken in a program of public education.

Perhaps some of you were thrilled, as I was a week or so ago, in reading of General Giraud's escape from a Nazi prison. Over a period of eight months, through packages received from his wife, he collected strands of thread which, woven one by one into a cable, finally gave him the chance to slip through the fortress window into freedom. We can visualize the prevention of blindness program as just so many threads gathered into a cohesive whole. Centered

under one agency, as it must be for sound administration, it must utilize and operate through the services of all resources in the state, lay and professional, which will have a common understanding of the problem. Just so far as there is co-operation from everyone in the program will there be success and a saving of sight within the State of West Virginia.

Aniseikonia*

Homer B. Field, M.D.

DISCUSSES the nature and methods of detecting aniseikonia and how the condition may be corrected.

RECENTLY, in the popular pseudoscientific literature published for the general public, there have appeared several articles on aniseikonia, with the result that patients have become more familiar with the term than has the average physician. This frequently leads to a misconception of the condition by the patients. I constantly receive inquiries from physicians who, at the instigation of their patients, wish to know something of this condition. To answer these questions I have written this paper.

The Nature of Aniseikonia

Aniseikonia is defined as a difference in the size and the shape of ocular images in the two eyes. It should be emphasized that the word ocular rather than retinal image is used. The image with which the measurement of aniseikonia is concerned is not the optical image which falls upon the retina, but rather is the image which arrives at the higher centers of vision and is then projected in space as the perceived object. In the process of the perception of this resultant image there are several factors: (1) the object seen; (2) the external medium for the light rays; (3) ordinary spectacles worn by the patient; (4) the ocular media, *i. e.*, cornea, aqueous, lens and vitreous; (5) the refractive state of the eye (*e. g.*, myopia or hyperopia); (6) the visual pathway; and (7) the higher visual centers in the brain, involving projection and perception. Any of these factors may alter the size or the shape of the ocular image.

* Extracted, with permission, from *Journal of the American Medical Association*, May 9, 1942.

It has long been recognized that the two eyes of the same person do not see alike. If a person is farsighted in one eye and nearsighted in the other, it can be assumed that the object he sees is larger through the convex lens for his farsighted eye than the object he sees through the concave lens of his nearsighted eye. This is based on the fact that a biconvex lens magnifies, while a biconcave lens minifies. Cognizance of this difference in the imagery of the two eyes was taken as early as 1863 by Donders, but he and the investigators who followed him felt that nothing much could be done to correct the condition. While attempts at correcting differences in size between the images produced by the two eyes in monocular aphakia following surgical intervention for cataract were started from time to time, no great effort was made to correct the differences in the images produced by so-called normal eyes until the advent of Professor Ames and his work at the Dartmouth Eye Institute.

Following the lead of certain European writers, the group at Dartmouth began to investigate the optics of vision and gradually worked into the realm of binocular vision and space perception and the effect of aniseikonia on this mechanism. It quickly became apparent that the difference in size between the images in the two eyes was usually small—a matter of only a few per cent. Rarely are large differences noted.

At the Dartmouth Eye Institute a number of pieces of apparatus have been invented with which studies are carried on by the members of the institute on such matters as the effect of aniseikonia on the perception of flat surfaces and on space orientation. One of these instruments which has received a great deal of publicity is the "leaf room." This room is designed so that the observer sits at one end and sees three walls, the floor and the ceiling. The walls are covered with equal sized leaves, and no pictures or other objects are allowed to destroy their continuity. As the observer looks at the room, he will get certain distortions of its shape and size if he has an aniseikonic condition.

Another instrument, which has received equal publicity, is the tipping table. This is a flat table top mounted on a universal joint so that it may be tipped in any plane. The effect of aniseikonia on the perception of flat surfaces is one of tipping. As a person

with aniseikonia looks at the table top he will find that it does not appear level when actually it is. He is asked to set the table level, and a measurement of the strength of the aniseikonic lens required to make the table appear level may be a measurement of his aniseikonia.

Other instruments, which have rather fancy names, have been devised during the investigation. These are the "squirrel cage," which gives the subject a three-dimensional target to examine with aniseikonic lenses, and the S curve machine, which has been developed to study the "induced effect" of size lenses. A constantly changing host of instruments is being used at the institute, all with the idea of research in aniseikonia.

Methods of Detecting Aniseikonia

There are two general methods of measuring differences in size of images produced by the two eyes: (1) the direct method, involving use of the eikonometer; and (2) the indirect method, in which functional tests are used to study tipping effects and distortions of the horopter. The latter method is difficult to use because of measurement factors and the extreme amount of careful judgment the patient must use. . . .

There are no symptoms which can be definitely called aniseikonic. If the difference in size between the images in the two eyes is considerable, a suppression may take place. If the correction is slight, the symptoms may be those of asthenopia, i.e., ocular fatigue, headaches with use of the eyes, lacrimation, and burning and itching of the eyes. Only rarely does a patient complain of tipping and distortion of objects, especially flat surfaces. Aniseikonic patients frequently complain of faulty space perception and inability to judge distance and the flight of a moving object. Ocular distress which cannot be relieved by the use of ordinary procedures in refraction and muscle balance and correction of fusion difficulties should cause one to think of aniseikonia as the fundamental defect.

The Correction of Aniseikonia

After reading the articles in popular literature one is apt to get the mistaken conception that aniseikonia is a common defect. Actually, it is found that probably not more than 2 per cent of

the general population have correctible aniseikonia. As persons are measured routinely with the eikonometer, it is found that the images in the two eyes in practically all of them will evidence some differences. Usually this is 0.25 to 0.50 per cent. Persons who have been measured because their symptoms were thought to have an aniseikonic origin were found to have, on an average, 1.50 per cent to 1.75 per cent difference in size of the images.

It is well to state here that not all patients shown to have aniseikonia are entirely relieved of symptoms by wearing the aniseikonic lenses. Roughly speaking, only about one-third of the patients given the glasses will report that they are entirely relieved of their symptoms. Another third will report partial relief, and the last third will frankly report that their money has been wasted and that they have not been helped.

In the correction of aniseikonia three general ideas must be impressed on patients:

1. Binocular vision must exist in some form in order that tests and proper correction may be made.
2. This work is not a panacea for headaches and ocular distress.
3. Some persons respond in such a way to the action of aniseikonic lenses that it is necessary to use temporary prescriptions in the form of clip-on lenses to study the subjective response of the patient before a permanent lens is made. If this is not done, possibly there will be a certain shift in the correction in a short time necessitating the outlay of considerable money.

The cost of spectacles containing aniseikonic lenses averages about \$20 to \$40, depending on the correction required and the type of glasses the patient desires.

It has been my experience in the department of ophthalmology of Northwestern University Medical School that the majority of patients who are referred for aniseikonic measurement are in need of (1) a more adequate refraction and (2) an investigation of binocular vision from the point of view of muscle balance, vergence powers and stereopsis. The vast majority of patients will be relieved of asthenopic symptoms if the needs mentioned are first properly attended to. After that has taken place, aniseikonia should be considered.

NOTE.—Aniseikonia forms the subject matter of the following articles:

Lancaster, W. B., Aniseikonia, *Archives of Ophthalmology*, Volume 20, December, 1938.

Hughes, W. L., Clinical Observations on Aniseikonia, *American Journal of Ophthalmology*, Volume 18, August, 1935.

———, Aniseikonia with No Refractive Error, *Archives of Ophthalmology*, Volume 17, May, 1937.

Carlton, E. H., Clinical Aspects of Aniseikonia, *American Journal of Ophthalmology*, Volume 20, April, 1937.

Wibaut, F., Entstehung und Klinik der Refraktionsanomalien, Sehscharfe, Akkommodation, *Ophthalmologica*, Volume 97, July, 1939.

Ames, A., Jr., Aniseikonia: A Factor in the Functioning of Vision, *American Journal of Ophthalmology*, Volume 18, November, 1935.

Sight Restoration in Indiana as Conducted by The State Department of Public Welfare*

C. W. Rutherford, M.D.

AS a state supervising ophthalmologist under the Social Security Act, the author discusses sight restoration in Indiana. Cataract, glaucoma, trachoma, pterygium, glasses and other treatment are the topics presented.

THE present law for assistance to the blind in Indiana became effective July 1, 1936; the Act provided for eye treatment, and this service began to function January 1, 1937. By June 30, 1941, there had been 925 applicants, 514 men and 411 women approved for medical care by the Department of Public Welfare. The case load is fairly well stabilized at a little more than 2,400, due largely to the departmental policy of approving treatment wherever there is a reasonable chance to restore vision (see Cataract), stabilize sight without further loss (see Glaucoma), or to forestall the onset of blindness in eligible persons even though vision might be but little impaired at the time of application (see Pterygium).

Age eligibility includes all men over 21 years of age and all women over 18. Visual eligibility for blind assistance requires that central vision is 20/200 or less, or in cases where it is better than 20/200 that the visual fields are contracted in the widest diameter to 20 degrees or less in the eye with the wider fields. Applicants for eye treatment are not limited to these terms of visual eligibility, for the intention here is to prevent blindness.

Medical records to establish eligibility for monthly assistance or eye treatment are executed by a state-wide staff of about 125 medical graduates. Their individual preparation of records reflects

* Presented at the National Conference of Social Work, New Orleans, La., May, 1942.

their training for the practice of ophthalmology, their experience in that field, and their personal co-operative interest in welfare problems. The value of a report is measurable by the same factors. Most applicants are first examined many years after the occurrence of the original disease or injury that led to impairment or loss of sight. This fact leads to errors in diagnosis unless the surgeon distinguishes between the immediate effects of disease or injury, and the changes that occur in tissues as a result of such disease or injury over a long period of time.

In such a large group of examining physicians, ranging from beginners to old-timers, uniformity in reporting cannot be expected. It is the province of the state supervising ophthalmologist to reconcile differences and inequalities in order to provide equitable consideration for all applications. That official is favorably situated to render decisions as to visual eligibility in a strictly impersonal and impartial capacity; this arrangement protects the county examiner from possible pressure by local prejudices and opinions.

Any individual who has been approved for eye treatment has the right to select the attending physician, subject to the approval of the state supervising ophthalmologist. In most instances the patient is assigned to a physician according to the best judgment of the county department.

Workers in blind assistance and eye treatment programs become acutely aware of disheartening handicaps and limitations. Applicants are mostly past the age of 50 years and unemployable; they generally come from a social stratum where they are low in physical vitality, poorly nourished, dwelling in crowded conditions without modern facilities for proper hygiene, and too often they lack ambition for visual improvement or betterment in any way if individual effort is required. Their spirit is without wings. They live from day to day. Tomorrow has its own problems; why worry about them until they come? It is this attitude, along with subnormal conditions, that accounts for many failures in attempted treatment. As patients these folks fail to recognize, or at least to be guided by, the importance of continued care of the eyes following surgery or treatment of acute conditions, and persistence in continuous treatment for chronic conditions. A part of the treatment plan is to teach the necessity of eye care as long as it may be necessary.

A special class declines eye treatment because of religious beliefs against doctoring and doctors, fear of hospitals and the surgeon's knife, or discouragement by relatives and nosey neighbors. Indiana has provisions for handling such situations where public policy is best served thereby.

The Divisions of Assistance to the Blind and of Eye Treatment of the State Department of Public Welfare were created to deal with individuals who are blind or whose vision is in jeopardy from disease or effects of injury; they were not created to assume any of the responsibilities of public health services in the control of infectious diseases or the prevention of injuries.

We present our experiences with sight restoration as they have impressed us, with special interest in results.

Cataract

As long as the crystalline lens of the eye is clear and transparent it transmits light and helps to focus light rays on the retina to form images. Whenever the crystalline lens becomes opaque, it is called cataract. The onset of cataract is possible throughout life, from before birth until death. Cataracts that exist at birth are called congenital and usually have an hereditary background, with some other members of the family similarly afflicted. Those that appear after birth are designated acquired cataracts. Persons who have diabetes are prone to develop them, and to a lesser extent do those who have arteriosclerosis. The great majority of cataracts develop in persons who are more than sixty years of age and the cause is unknown, so they are called senile. All theories that attempt to explain the development of senile cataract lose potency when confronted with the fact that some individuals develop cataract in one eye but not in the other. In our experience the greatest incidence is in the age group 60 to 70, with the age group of 50 to 60, second.

Cataract varies in rapidity of development. Mostly the progress is slow; in early cases medical treatment seems to be effective in some persons in retarding or arresting the process, and sometimes minor opacities actually disappear while under treatment. In other and seemingly similar cases the cataract progresses to maturity regardless of treatment. Surgical removal of an opaque lens is the

only effective method for restoring sight; in our experience with 486 patients, 60 per cent regained vision of 20/40 or better; 14 per cent, better than 20/70; and 9 per cent, better than 20/200; while 17 per cent had 20/200 or less at the conclusion of surgical attention.

Those who had 20/200 vision or less are accounted for in three ways: 57 per cent of them actually gained in visual acuity; 18.5 per cent failed to obtain glasses or complete postoperative care; and 24.5 per cent lost more vision following surgery. This last group may be further divided into those who had some disease of the eye that was undetected when the surgical treatment was being planned, and those who developed some infectious or inflammatory disease of the eye in the postoperative period. Adequate preoperative ocular and medical examinations might be expected to reveal the presence of glaucoma, evidences of an old inflammation of the iris, or a degeneration of the retinal and choroid coats of the eye. Suitable preoperative preparation of the patient can be expected to minimize the liability to postoperative infections; due attention to possible sources of infection, such as teeth and tonsils or other structures that may harbor lurking or latent infectious organisms, can be expected to provide additional measures of safety and operative success.

Since the crystalline lens focuses light rays on the retina, and since this function is lost by removal of the opaque lens or cataract, a suitable spectacle lens must be worn to compensate for the lost crystalline. Therefore, the degree of restored vision depends upon the exact fitting of the lens to be worn. A stronger spectacle lens is required for reading and all near work, just as older individuals with normal eyes require a bifocal lens or a separate and stronger lens for near use. A successful cataract case is not completed until a spectacle lens has been fitted.

Glaucoma

Formation of images on the retina requires that there be no obstruction to light rays that pass through the eye to the retina. Therefore, the cornea, lens, and vitreous humor cannot be nourished directly by blood, which is opaque. A clear, transparent, lymph-like liquid is supplied instead. When this fluid is manufactured more rapidly than it passes from the eye, or when the drain-

age of fluid is not effected as rapidly as it is manufactured, the pressure inside the eyeball is increased. This higher-than-normal pressure constitutes glaucoma, or hardening of the eyeball. Primary glaucoma appears without previous disease of the eye, while secondary glaucoma is either a complication of or a result of antecedent disease, such as iridocyclitis. Without antecedent disease it is not known why an eye should become hard.

When a disease has no known cause it must be treated on the basis of medical or surgical experience. Mild cases of glaucoma are often sufficiently controlled by miotic drugs; that is, drugs that contract the pupil and so keep the iris taut. It is known that emotional disturbances tend to make a very serious glaucoma out of a mild one, and patients with mild glaucoma should be warned of this liability. Thus surgical is more reliable than medical treatment, even though many operations may have to be performed on any eyeball to make it safe from total and permanent blindness. A partial loss of vision due to glaucoma is seldom regained, as may be expected from the removal of a cataract, because glaucoma leaves permanent changes in the eye.

Our statistics have been built on results of surgical treatment. On January 1, 1941, there were 317 persons receiving monthly assistance because of blindness from glaucoma. Twenty-four of the more favorable ones were or had been approved for surgical treatment; they fell in the age groups of 60 to 70 and 50 to 60. Visual improvement followed in 12 cases, vision was stabilized in nine, one lost more vision and two never reported further. Early medical attention undoubtedly would have prevented much of the blindness due to this cause.

Trachoma

While cataract extractions have provided the most spectacular results in the restoration of vision, the Department has learned much more of real value in the prevention of blindness by the study of trachoma and its management. This is not to say that the results of treatment have been satisfactory; for they have not, because of the age groups to whom departmental services are not available. No female under 18 or male under 21 is eligible for any form of eye treatment, and those are the ages where best results are obtained

by treatment of this disease. Trachoma of itself is not blinding, but it gives rise to complications and tissue changes which are potentially and actually blinding; for maximum results the patients must be treated before the complications and changes occur.

The plan of treatment was put into effect July 1, 1939. It consists of sulfanilamide internally and neoprontosil instillations into the eye, along with surgical corrections of deformities of the eyelids, which, if permitted to persist, would probably defeat the ends of the plan.

From July 1, 1939, to June 30, 1941, the Department sponsored the treatment of 102 selected individuals, not all of whom had visually qualified for monthly blind assistance. Eleven gained vision of 20/40 or better; 13, of 20/70 to 20/40; and 17, of better than 20/200 to 20/70. Sixty-one had 20/200 or less vision at the conclusion of treatment; this high percentage of failures was accounted for by the persistence of complications and tissue changes already present in the eyeball or eyelids. However, with 41 persons visually improved, we are encouraged to continue to sponsor the treatment for applicants who come to the attention of the Department if there is any prospect of resulting vision exceeding 20/200. Incidentally, treatment is also supplied for persons with active trachoma to protect associates, even though there is no prospect of visual improvement, for the treatment seems to sterilize the infection that causes the disease. Exclusive of surgical attention the cost of completed treatments has averaged less than twenty dollars per patient.

Our greatest need is for an agency to sponsor treatment for the young age group not now eligible. With that advantage trachoma would eventually cease to be a problem in conservation of vision in Indiana.

Pterygium

Pterygium is a triangular, semi-fleshy, membranous growth that starts in the conjunctiva at the inner or nasal angle of the aperture between the eyelids and grows toward and onto the cornea; when it extends across in front of the pupil, light cannot enter the eye and blindness ensues. It is the policy of the Welfare Department to regard all pterygia as eventually blinding and to arrange treat-

ment to prevent blindness, even in cases where vision is still unimpaired. The treatment is surgical. No statistics are available because these patients are seldom heard from after enjoying the insurance of treatment.

Glasses

Glasses are furnished to all patients who have had extractions of cataracts by arrangements of the Department; they are also furnished to patients who have had extractions by private means or through other agencies if vision can be materially improved by new glasses; they are furnished to patients whose vision can be improved from 20/200 or less to better than 20/200, and to applicants when the medical examiner advises that further and progressive visual loss could be expected without them.

Other Treatment

General systemic or special attention, other than eye surgery, has been provided where related to the success of proposed eye treatment. Such medical care was given to 17 individuals and included dental hygiene and treatment for sinusitis, diabetes, high blood pressure, avitaminosis, and so forth.

Treatment was instituted in 925 persons, but discontinued in 78 instances because of a variety of circumstances, including deaths.

The Eye Treatment Program of the Indiana State Department of Public Welfare has been so successful and interesting that it will be continued and expanded wherever favorable opportunity presents.

Children's Services in Sight Conservation*

Laura E. Dester

DESCRIBES the role of the Child Welfare Division in Oklahoma in conserving the sight of the needy children in that State.

OKLAHOMA is a rural state, known as the "land of oil wells" and the "home of the Indians"—a land where men amassed fortunes and gave generously of their wealth, providing many institutions, but delegating their interest and the care of children to several state boards, commissions, and departments.

The Federal Social Security Act, with its provisions for federal grants to states for extending individualized services to children in rural areas, marked the beginning of a new era—a starting point for case work services to every child.

Just as our grandfathers and fathers pioneered in the development of an empire, so we have found ourselves making something of the same effort to interpret the meaning of case work and child welfare services. To give services to homeless, neglected, dependent children, and to children in danger of becoming delinquent, had little meaning in a rural state where services to children were defined by institutional care, widow's pensions, and relief from the county poor fund. Thus, in the early period of the development of a child welfare services program, it was necessary for the child welfare worker to find her place in the community picture. The worker has often been asked: "Where do you find children to work with? We have orphanages for the orphans, correctional schools for delinquents, ADC for the needy, schools for the deaf, schools for the blind, hospitals for the sick, and an institution for the feeble-minded. Now, just what is left for you to do?"

In a democracy such as ours it is generally accepted that the primary responsibility for the care and training of children rests

* Presented at the National Conference of Social Work, New Orleans, La., May, 1942.

with the family. The development of public schools, health agencies, and public playgrounds illustrates how families through the state have joined together to meet certain needs. In such a democracy the state has an obligation—to assure to all children an opportunity to utilize the services which have been established. In recognition of this obligation, it was a step forward when the United States Children's Bureau assisted all states in extending services in an attempt to meet the needs of every child. The programs of the 48 states and territories vary greatly. However, few will challenge the statement that child welfare services have had considerable leeway as compared with other programs of state departments. Child welfare divisions therefore have a responsibility as well as an opportunity to develop a program to meet the needs of the whole child and the needs of all children.

Fortunately, the Child Welfare Division in Oklahoma has state funds for resident children under twenty-one who are handicapped and who are in need of medical care; for services for the care of the homeless, neglected, dependent children; and for services for children in danger of becoming delinquent. Thus, there are more avenues open for providing the individualized services for children.

As child welfare workers went into areas in Oklahoma where case work services were unknown, only those cases were referred which had for many years been a problem to the community. The word "prevention" had no significance and the idea seemed fantastic. In one rural locality in Oklahoma a school child came to the attention of a very active Parent Teachers Association. This child appeared to be almost blind and, in their zeal to help, the Parent Teachers Association members advised the county judge to send this child without delay to the State School for the Blind. The county judge referred the case to the child welfare worker. Her first thought, of course, was an adequate examination by an ophthalmologist. The doctor found that the eye defect was due to malnutrition. His recommendation was merely provision of adequate diet.

This was a vivid lesson in interpretation, for this Parent Teachers Association group, who now assist in providing adequate diet, realize they might have condemned this child to a world of darkness. Now they see her as a happy, well-adjusted child who can take her place in the school and community.

Democratic forms of government need intelligent and adjusted persons. Children's agencies are challenged to utilize existing resources to develop healthy and adjusted citizens. No one will question that visual handicaps create specific emotional and vocational problems which make it difficult for the individual, thus handicapped, to become a participating citizen. If children's agencies accept the assertion that children's eyes are the most important single channel of learning, then children's agencies must know that they have a responsibility for active participation in sight conservation.

According to Dr. Motto,¹ "The social worker is an expert at solving and adjusting problems—and the success or failure of treatment may be dependent in large measure on her efforts." The function, therefore, of the child welfare worker is to interpret, to the parent and to the child, the problem and the need for adequate medical care, and to assist the family and the child in making emotional and economic adjustments.

The child welfare worker, in planning for the physically handicapped child, recognizes the skill of the medical social worker as one of her primary resources. In Oklahoma a "crippled" child is defined as a child having any malady which may lead to crippling. This includes eye conditions. A co-operative plan has been worked out between the medical social work staff of the Oklahoma Commission for Crippled Children and the child welfare staff. This plan makes it possible for the child welfare worker to have counsel and guidance in medical social problems, and it provides an opportunity for the medical social worker located in a medical center to utilize the services of the child welfare worker in the rural area in carrying out case work treatment. Even though transportation facilities are available, the distance from the home to the medical center often is so great that other services are needed. There are times when children from rural areas need to be in the medical center for outpatient treatment only. Plans for overnight care in a foster home may play an important part in the child's attitude toward the medical treatment. It is so important in these instances to have good foster care. Parents are much more likely to co-operate in the plan if the child welfare worker is able to assure them of adequate services.

Integration of social services is desirable—undoubtedly this must be the goal. Until such time as this goal is reached, the will to co-operate makes it possible to co-ordinate activities of the several agencies interested in child care, and good results can be obtained.

The child welfare worker, in her contacts with the home, the school, and the juvenile court, has an opportunity to locate many children with physical problems. For some time to come she cannot anticipate medical treatment facilities in the rural areas that are equal to those in the urban centers. She can, however, utilize resources within the state. This, then, is a real challenge to the medical social worker to give the child welfare worker the necessary help, not only in locating the child but also in carrying out the treatment when the child returns home.

Dr. Arno E. Town has said in a recent article²:

“A common preventable defect which has been brought to the attention of those working on the Selective Service Boards is the poor vision in one eye, due to squint or cross-eyes. Many of these men have been surgically treated, so that the appearance of the eyes is fine; but there has been no after-care or eye exercises which might have prevented the defective vision. . . . Here, then, is an entire field of sight conservation which has been neglected. A follow-up of these reports should be the endeavor of the social worker, working in association with the surgeon who operated on the cross-eyes. . . . We need more co-ordinated services which will unite the medical profession and all of the social agencies.”

Here, again, is a recommendation which calls for more child welfare workers in the rural areas, more medical social workers in medical centers, and more staff meetings for joint planning, to assure better eye care for children.

It is not known how many cases of blindness might have been prevented if the visual handicaps had been located early and good medical treatment given. If such information were available, it would be the ophthalmologist who could give an interpretative analysis of the causes of blindness and methods of prevention. However, certain interesting observations with social work significance can be made.

The State Department of Public Welfare in Oklahoma, through the Division of Public Assistance, administers the program of Aid to the Blind. There are 2,146 recipients of Aid to the Blind in the

State. In this group, the five principal causes of blindness are: trachoma, 23 per cent; cataract, 18 per cent; optic atrophy, 14 per cent; uveal disease, 13 per cent; and keratitis, 12 per cent. It is not known what proportion of this group would have responded to treatment if located early in the illness. Certainly with principal causes, such as trachoma and other infectious diseases, it is assumed that sight could have been conserved for a considerable number. According to the records in the State Department of Public Welfare, 581 (or over 25 per cent) of these recipients state that their blindness occurred before they were twenty years old. These figures alone indicate the need for services.

But this is not the whole picture in Oklahoma. A recent account³ of the present population of the School for the Blind states:

"Among the 141 students in the State School, accidents of various kinds are responsible for 16.3 per cent of the conditions which brought these children to blindness or near-blindness. . . . Of another large group among the 141 students in the School, 14.9 per cent had congenital cataract. Since the cause is as yet unknown, prevention is difficult, but restoration of sight is often possible.

"These children illustrate the need for adequate resources for skilled medical care in early childhood. This is the moment when relatively simple modern surgical treatment can often enable these children to see well after they have been fitted with glasses. Social workers going into families need to use the most effective persuasion in getting the parents to take these children either to skilled eye physicians or to the Crippled Children's Commission for care in babyhood or early childhood. Children with congenital cataract, treated in very early childhood, thus begin their learning processes with the full battery of senses. Child psychologists tell us this is important, for basic reactions developed then are difficult to change. Also, the mechanism of sight may deteriorate so that operation at a later age may not bring as good results as might have been expected.

"For these twenty-one children modern surgery could probably have prevented blindness had these children been placed under care early enough. Thus, adding 41 cases of blindness from communicable diseases, 23 from trauma, and 21 from congenital cataract, it is evident that 60 per cent of the blindness of the children in the School for the Blind was unnecessary."

To a child welfare worker these figures suggest that communities need to be made aware of the necessity of education along pre-

ventive lines and of providing better medical facilities and better use of existing facilities.

One day, while visiting a rural school, the child welfare worker noticed a little boy in the rear of the classroom who was wearing a patch over his right eye. She questioned the teacher regarding his difficulty. The teacher said she really did not know what was the matter with his eye. She said that Bobby had been wearing the patch for about a year and that she and the children were so accustomed to seeing it that they just never mentioned it to him. The worker learned from Bobby's family that they were distressed when the boy first injured his eye, but that they had not taken him to the doctor because the pain had subsided within a few days. The family readily consented to the worker's suggestion that Bobby be seen by a physician. When the boy was taken to the eye specialist his lids were so securely locked together it was necessary for the doctor to anesthetize the whole area before he could even look at the eye.

Medical treatment was provided and perhaps no permanent eye damage has occurred. However, think of the effect this injury and its neglect may have had upon the boy's personality development!

The Child Welfare Division received a telegram from a county juvenile judge in a remote section of the state which gave the following information: "Have an eight-year-old abandoned child with trachoma in county jail. None of the children's institutions will accept him because of infection. Will you please take the child?" Emergency plans for this youngster were comparatively simple. He was placed in a foster home. The foster mother had previous experience in caring for children with trachoma, and the home was located in a town in which the services of an ophthalmologist were available. The ophthalmologist's diagnosis revealed other eye difficulties but no trachoma. This child needed medical supervision, it is true, but he also needed a home. After treatment was completed, plans were made for permanent placement in a substitute home.

These illustrations give evidence of active participation by the child welfare worker in sight conservation, even in a state which has delegated its child care responsibilities to some eight state departments. These services could be much more effective if responsibility for child care were centered in one children's division, with control and supervision of admissions to children's institutions

as one of its functions. Experience in children's work proves that not all children needing care away from their own homes adjust to institutional life. Is it not fallacious to assume that all children with a visual handicap should be in an institution? What, then, is the answer? Integration of children's services—agencies equipped to provide services in the child's own home, in a foster home, or in an institution—with good medical facilities available in all instances.

This places upon the child welfare worker an obligation to create an interest in better facilities for the care and treatment of the handicapped child. What are her specific methods and skills utilized in this phase of child care? The child welfare worker in her daily contacts with children is sensitive to their needs, and in her close observation of their behavior is able to locate possible causes of difficulties. Her ability to use actual examples of child neglect as a means for interpretation to the community, plus her knowledge of community facilities for treatment or lack of such facilities, enables her to see the whole picture. The child welfare worker can and must be able to contribute to the sight conservation program. This can be accomplished by:

1. Her case work with children, their families and their foster parents.
2. Her contacts with children's institutions.
3. Her contacts with school teachers and school administrators.
4. Her contacts with physicians and public health officials.
5. Her contacts with workers in public assistance agencies.
6. Her work with child welfare service advisory committee members.
7. Her participation in meetings of church and civic groups.

The following illustrates a single case which involved services with a child, with the foster parents, the school, the physician, advisory committee members—and was later used by the worker in interpretation to civic groups.

Bart was seven. His school teacher told the child welfare worker he had trachoma, and was getting no treatment. She described his family as chronic dependents, a family who were hopeless and who could not make good use of any help given them.

The worker found a father whose blindness had in part contributed to the dependency of the family—a young stepmother,

uneducated and unprepared to assume the responsibility of caring for Bart and his two older brothers—and living conditions that were deplorable.

An eye specialist was willing to help. He said treatment must be instituted immediately. Because of the inadequacy of Bart's own home and because of the time element, this child was moved to the home of his maternal grandparents, while efforts were being made to make his own home more sanitary and livable.

Bart had a somewhat dependent attitude. He implied in various ways that "the world owed him a living." Bart was welcome in the grandparents' home, and they tried hard to carry out all suggestions for the child's good. Treatment of the eye condition was painful. He had to be constantly encouraged to continue. While the doctor was responsible for treating the eyes, the worker was responsible for the child as a whole, and his adjustment to his family and to society. Lately the teacher has commented not only upon Bart's progress in school work, but also upon the good attitude he is developing. The community is becoming aware that improvement in the family situation is being made—slowly, it is true, but nevertheless, improvement.

The fact that this visually handicapped child and his family were given services furthered child welfare and strengthened the entire children's program in this community.

To those who deal with children's problems, sensitivity is an essential quality. Successful workers do not depend upon referrals alone, as too frequently the seriousness of a handicap is not understood. Recently a woman came to the office of the child welfare worker to ask assistance with a problem. She was accompanied by a neighbor and the neighbor's small son. The specific problem for which help was requested was discussed before the worker turned her attention to the neighbor's child, who obviously needed her help, for it was noticeable that the child had difficulty in seeing. The mother explained that this was their only child and that her husband was so "wrapped up" in the child that he had steadfastly refused to have him seen by a physician for fear an operation would be recommended. The operation would mean temporary removal of the child from his home—and in the father's mind, there was the genuine fear that the end result might be disastrous. To remove this fear and anxiety will require skill, patience, and understanding.

It is not known to what extent anxiety and fear of medical care

are factors in causing blindness. It is interesting to note that, of the 2,146 recipients of Aid to the Blind known to the State Department of Public Welfare in Oklahoma, recommendation for treatment was made for 535, or almost 25 per cent. Follow-up work has not been attempted on all cases, but of those seen one-third have refused treatment. It is hoped that through individual interpretation and counselling this figure can be greatly reduced.

In conclusion we might summarize the ways in which a children's worker may contribute to sight conservation. She may contribute by:

1. Recognizing eye and general health problems among children under care.
2. Obtaining all necessary medical care to insure good vision in terms of modern medical science.
3. Strengthening nutrition work and weaving it into case work in terms of adequate and balanced diet for all families under care.
4. Visiting schools for the blind, observing the children, and, where necessary, giving the school authorities all possible assistance in providing medical or surgical care.
5. Encouraging educational authorities to make possible facilities for all handicapped children, according to their special needs.
6. Interpreting to civic groups the contribution they can make in preventive work.
7. Promoting public understanding of the distinctive needs of the partially seeing.
8. Assisting in developing careful, selective processes for the admission of children to all state institutions.

As long as children's divisions of state departments of public welfare have the responsibility of giving services to neglected and dependent children, they have a major responsibility in removing causes of neglect and dependency. May those of us actively engaged in children's work have the courage, the vision, and the foresight to accept our place in creating public understanding and public support for those services which conserve the sight of our youth.

References

1. Champion, William M. *Medical Information for Social Workers*. Baltimore: William Wood and Company, 1938.
2. Town, Arno E., M.D. "Eye Defects Discovered Through Selective Service Examinations." *Sight-Saving Review*. Vol. XI, No. 4, December, 1941.
3. Gardiner, Elizabeth G. "Why Not Blot Out Blindness in Oklahoma?" *New Frontiers in Social Welfare*. Vol. II, No. 3, March, 1941.

Ophthalmia Neonatorum

J. Vincent Flack, M.D.

THE author emphasizes the need for continuing the drive on ophthalmia neonatorum.

THOUGH more than half a century has passed since Credé offered the solution to the problem of ophthalmia neonatorum, this disease is still a common occurrence. Hundreds of infants are blinded in one eye and approximately one hundred children enter schools for the totally blind every year in the United States alone as a result of this preventable disease of the eyes. Why should this be so?

The motto of the Department of Health of New York State reads, "Public health is purchasable and within certain limits a community can determine its own death rate." What are these certain limits? An exhaustive study of the problem of ophthalmia neonatorum reveals them clearly, as far as this disease is concerned. The failure results not from lack of knowledge: the failure lies in not precisely applying the positive knowledge we have.

Experience clearly indicates that the discovery of an absolute preventive or cure for a disease does not mean that this disease is done for, as far as the human race is concerned. What better example could be offered than that of Jenner and smallpox. Almost a hundred years before Credé, the country doctor, Edward Jenner, told the world, at least the Occidental part of it, how to prevent the dread disease, smallpox. And 150 years later, what do we find—smallpox endemic throughout the civilized United States. Why? Is it because vaccination is not effective? Most certainly not. It is because vaccination is *too* effective. The wholesale suffering, disfigurement, and death resulting from smallpox have been abolished from man's memory and man's children. The ignorant and the "crackpot" refuse vaccination. Stringent laws are necessary to

force the delinquents to protect themselves. But laws have never completely solved any problem. Morals cannot be legislated in and disease likewise cannot be legislated out. Education and co-operation are necessary adjutants.

Incidence of Ophthalmia Neonatorum

The term ophthalmia neonatorum includes both gonococcal and non-gonococcal inflammations. Of all these, only the gonococcal infections are a real threat to vision. The others, with the very rarest exception of a severe streptococcal infection, are bothersome but not so serious, and really should not be classified under this name. The difference between a gonococcal and non-gonococcal eye infection in the newborn is usually so great, both in clinical course and prognosis, that the same general name is misleading. Inclusion blennorrhea of the newborn, a virus disease, never a threat to vision, alone seems to have attained its own distinctive name, but even here there is a tendency to include it under the general group.

The reported incidence of gonococcal ophthalmia neonatorum varies widely. This variation is due to many factors. The laws of most states and foreign nations are individual and likewise the enforcement of them depends to a large extent on local custom and opinion. Thus eight states and four Canadian provinces in which 196,748 births occurred reported no cases of ophthalmia in 1939, while Ohio, with five per cent of the population of the United States, accounted for 23 per cent of the fully recorded cases. Even the reported cases are no true indication of the incidence of this disease. Lowenstein, in a study of the records of 37 New York City hospitals from 1931 to 1936, showed that while only 23 cases had previously been reported to the Department of Health during this time, the records revealed 1,344 cases among 192,478 births (31 per cent total New York City births, 1931 to 1936); out of these, 141 were of gonorrheal origin. The only conclusion that can be drawn from the findings is that gonorrheal ophthalmia neonatorum is still a common disease.

Present Study

In the past 12 years there have been over 27,000 births at the Sloane Hospital for Women at the Columbia Presbyterian Medical

Center. During this time the technique of a modified Credé method of prophylaxis has been changed once. In the first period of 8 years, one per cent silver nitrate was dropped into the eyes of the infant by one attendant while the other held open the lids, using both hands, one to lower the lower lid and the other to raise the upper, a piece of gauze assisting on each lid. No previous irrigation or wiping the lids with a moistened sponge was done. A few seconds after silver nitrate had been instilled it was irrigated out with normal saline solution. During these 8 years there were 17,000 births. In the next four years exactly the same technique was carried out except that the saline irrigation of the silver nitrate solution was omitted. There were 10,000 births in this period. This change in method was decided upon because two cases of gonorrheal ophthalmia occurred almost simultaneously in August, 1936.

The births are divided into approximately 40 per cent private and 60 per cent ward. Of the ward cases, 20 per cent are colored, a rather high percentage. All the cases of gonorrheal ophthalmia neonatorum developed in the ward cases. Not a single baby developed gonorrheal ophthalmia in over 10,000 private deliveries. One private case which was delivered in a hotel and subsequently brought to the medical center came down with gonorrheal ophthalmia neonatorum! In the first period, 1929 to 1936, there were 16,922 births, with 11 cases of gonorrheal ophthalmia neonatorum. In the second period, during which time the silver nitrate was not irrigated out with normal saline, there were 10,248 births and only one case of gonorrheal ophthalmia neonatorum.

Gonorrhea in Pregnancy

Bernstein and Montgomery, in investigations at the outpatient department of the Jefferson Medical College, found about 7 per cent of pregnant women had gonorrhea. They state that other authors have found gonorrhea in from 18 to 50 per cent of pregnant mothers. That the incidence is higher than bacteriological findings indicate it to be is clear from repeated negative smears in many cases of known gonorrhea in women. One of the most important clinical characteristics of the gonococcus is its power of latency (Table I).

TABLE I.—INCIDENCE OF GONORRHEAL OPHTHALMIA NEONATORUM IN
27,000 BIRTHS, WARD AND PRIVATE
According to Different Silver Nitrate Techniques

<i>Silver Nitrate, 1 Per Cent, Followed by Normal Saline Irrigation 1929–1936</i>		<i>Silver Nitrate, 1 Per Cent Alone 1936–1940</i>	
<i>Births</i>	<i>Cases of Gonococcal Ophthalmia</i>	<i>Births</i>	<i>Cases of Gonococcal Ophthalmia</i>
16,922	11 1 in 1,538	10,248	1 1 in 10,248

TABLE II.—INCIDENCE OF OPHTHALMIA NEONATORUM
November 1, 1936–October 31, 1940
Ward Births Only

	<i>Number</i>	<i>Per Cent</i>
Inclusion blennorrhea.....	32	34.0
Staphylococcus aureus.....	29	30.8
Pneumococcus.....	1	1.06
Haemophilus influenzae.....	2	2.12
Staphylococcus aureus and Aerobacter aerogenes....	1	1.06
Neisseria gonorrhoeae.....	1	1.06
Negative (normal flora).....	9	9.6
Lacrimal conjunctivitis (congenital stenosis)		
Staphylococcus aureus.....	5	5.3
Haemophilus influenzae.....	2	2.12
Streptococcus viridans.....	2	2.12
Diplococcus pneumoniae and Haemophilus in- fluenzae.....	5	5.3
Streptococcus viridans and Haemophilus in- fluenzae.....	1	1.06
Neisseria catarrhalis.....	1	1.06
B. hemolytic streptococcus.....	1	1.06
B. hemolytic streptococcus Streptococcus viridans Staphylococcus aureus	1	1.06
Negative (normal flora).....	1	1.06
Total.....	94	..
Incidence of all ophthalmia in 6,289 ward births.....		1.49
Incidence of gonococcal ophthalmia in 6,289 ward births.....		.016

That the technique of prophylaxis is highly important will be seen from the preceding table. The incidence of gonorrheal ophthalmia neonatorum is many times higher when the silver nitrate solution is washed out than when it is allowed to remain. To be effective, silver nitrate must reach the conjunctival sac and be allowed to exert its great potency against the gonococcus. It does no good if it is dropped somewhere near the lids or even on the lids. The statement, "Credé drops used," often protects the user (legally) more than the infant. One has only to watch the unskilled try to place drops in the newborn's eyes to appreciate this. It is a two-man job, both because of the difficulty and as a double check for responsibility. At Medical Center it has always been assigned to two persons to do.

The question of the effectiveness of other silver preparations is often raised. Proponents of silver acetate and argyrol argue that because these preparations cannot be made up in concentrations injurious to the newborn infant's eyes they are safer and, being silver salts, just as effective. It is a recognized fact that the gonococcus is very susceptible to silver preparations. However, the advocates of these other methods have not as yet brought out figures to match those of silver nitrate. Hartman reported the use of silver acetate in 3,615 hospital deliveries, following which 3 cases of gonorrheal ophthalmia neonatorum developed. This is almost six times higher than our latest figures.

Convincing figures for argyrol were not found.

The burden of proof is not on silver nitrate as the best preventive of ophthalmia neonatorum, but rather on its numerous substitutes.

Conclusion

The only conclusion seems to be that we have now and have had for 70 years the most effective kind of weapon against gonorrheal ophthalmia neonatorum. We must learn, however, that this simple weapon must be used with exacting care and aimed most accurately. There is more to shooting a gun than just pulling the trigger.

Demonstrations of Medical Social Work in Eye Clinics

Elizabeth G. Gardiner

DESCRIBES ten years of medical social work in eye services as promoted by the National Society for the Prevention of Blindness in a series of demonstrations.

FOR more than ten years the National Society for the Prevention of Blindness has carried on demonstrations of medical social work in eye services as a means of conserving the sight of patients. Placing a fully prepared medical social worker with a knowledge of eye health in eye clinics was one answer to the startling findings of the Dispensary Development Committee, which showed a high proportion of patients suffering from serious eye pathology likely to lead to blindness who did not return to carry out treatment.^{1,2} Assuming the situation found in New York and Philadelphia existed elsewhere, the Society wanted to develop a wider use of a means of case holding proved effective in meeting the same problem in other clinic services and at the Massachusetts Eye and Ear Infirmary.³ General conditions were constantly changing during the period of the demonstrations, ranging through the depths of the depression, the economic recovery and into the accelerated economic and educational tempo of the first months of World War II. Basic social philosophy has also changed with the acceptance of the Social Security and the Selective Service Acts. Both of these have shown great gaps in the nation's health services. Medical resources for treating early stages of eye difficulties are inadequate even in large cities and are so unevenly distributed throughout the country that many patients with simple remediable conditions like pterygium, ptosis of the lids, and cataracts are not being restored to the sighted world.⁴ Among

the young men examined for the armed forces, a large part of the rejections for loss of sight in one eye could have been prevented if these men had been retrained to see with both eyes, in addition to receiving other treatment.⁵ The effectiveness of many eye services is as questionable today as it was twenty years ago.⁵ Unless there are adequate social services integrated with medical care, patients still discontinue clinic visits before treatment is completed.^{6, 7, 8}

Have the demonstrations failed, or have there been too few of them, or has there been too little description of the results? These questions and many others naturally arise. An attempt to answer them now from the Society's experience with the demonstrations carried on from December, 1931, to June, 1942, is timely because war pressures may change or exaggerate trends already evident.

Plan

The general plan has been for the hospital wanting to try out medical social work as an integral part of clinical ophthalmology to request the Society to prepare a worker and to request financial assistance in paying the salary of the worker for a period of one to three years. The exact proportion of salary carried by the hospital and by the Society has varied. The general principle has been that the Society would pay half or less than half of the total salary for the whole demonstration period. The Society tapers off its share as the demonstration advances, and the value of the demonstration becomes evident. A written contract is signed by the chief ophthalmologist, administrative directors of the hospital and of the social service department, on the one hand, and, on the other hand, by the Executive Director of the Society after review by the Executive Committee. The hospital agrees to continue the plan at its own expense if the demonstration is satisfactory. A contract originally drawn for a year might be subject to renewal for a second year. This general plan has become known among medical social workers, ophthalmologists and hospital administrators. The most desirable requests for demonstrations have come at certain moments of growth in the medical schools, when a whole reorganization called for broad thinking and planning as well as for a high quality of ophthalmological practice, including full after-care for patients.

The medical social worker with special training in eye health

problems and an understanding of modern treatment plans, as well as the social implications of both, was expected to give full time to helping the eye patients to face their problems and to work out a practical way of meeting the difficulties. Through interviews with the patients and relatives in the clinic, the hospital or the home, this social worker was to reenforce the interpretation the ophthalmologist had given regarding the patient's condition and gather the social data necessary to helping the patient solve his problems. Through sympathetic listening to the patient's questions and his point of view, the obstacles to his acceptance of the treatment plan would be found and if possible removed. Thus the general principles of medical social study and treatment were to be applied early enough in the eye condition to give the ophthalmologists the best possible opportunity to conserve the vision. The understanding of the patient's attitudes was recognized as essential to his receiving the fullest benefit from modern medical science. A part of the skill expected of the worker was an ability to integrate her work with that of the ophthalmologist to achieve their common purpose of helping the patient. The keeping of suitable social records and making reports were necessary parts of a high quality of work.

The details of the plan have varied in the different centers according to particular features of the hospital, but the essentials have continued as their soundness became evident. Frequently certain groups of patients have been referred to the social worker as a part of the routine clinic procedure; then, in addition, the doctors were urged to refer individuals who seemed to need social guidance. Among the former groups were likely to be patients referred from the clinic to the ward with a recommendation for operation—a function of the social worker is to help the patient face his own fears of surgery. In the earlier demonstrations, all patients whose condition was due to syphilis or to glaucoma were interviewed at the time the diagnosis was made, to enable the worker to estimate the need for intensive social treatment.⁵ Syphilis and glaucoma are examples of several serious pathological conditions likely to lead to blindness if treatment is neglected. In the later centers, patients with these conditions and, in addition, any child with a condition likely to lead to impairment of vision, such as crossed eyes, are

especially considered. The experience of the demonstration centers in relation to these groups of patients has influenced planning in hospitals where no demonstration was located and has also influenced state-wide programs in regions as far apart as Louisiana and Maine.

The Demonstrations

In all, eight demonstrations have been undertaken, and two of these are continuing for another year. The first demonstration was undertaken in December, 1931, immediately following the first special course offered as a joint undertaking of the Massachusetts Eye and Ear Infirmary and the Society. The preparatory courses will be described later under a separate heading. Sometimes only one demonstration has been in progress; again, as many as three have been under way at one time. The demonstrations have varied in length from 1 to 3 years, the wartime uncertainties being responsible for the only one-year plan. All of the hospitals are teaching centers connected with university medical schools and five of the eight are connected with schools of social work. Two of those not yet affiliated with such schools may be drawn in at some future date. Half of the hospitals are under public auspices, one municipal and three state. Half are under voluntary auspices. The eight demonstrations were made in six states: two on the east coast and the other six in the Mississippi basin, scattered from Denver on the west to New Orleans on the south.

Seven of the eight demonstrations were in general hospitals. This fact may be related to the success of the demonstrations, for seven of the eight are classed as successful and only the one launched in a separate specialized hospital is considered unsuccessful. Certain characteristics of the seven general hospitals were important in the success of the demonstration. The most conspicuous of these is the high degree of development of medical social work under the guidance of an able director in many services. Other factors were undoubtedly present, such as the ophthalmologist's imaginative understanding of the patient as a person and the hospital administrator's desire to develop the best modern techniques in all services.

A general criterion utilized in evaluating demonstrations is the

continuation of the general plan of work evolved during the demonstration period, after the Society's financial support is over. Another index of success is the request from the centers to have special preparation given to a new staff member when the first one is promoted to a more responsible position. Requests for a demonstration or a specially trained worker in a hospital near one of the demonstrations is still another way of evaluating the results of a project. Two and often three of these indexes have been found in seven of the eight demonstrations.

Different and far-reaching developments in three of the earlier centers have also been important indications of the usefulness of the demonstration. The Washington University Clinic's demonstration, started in February, 1932, has developed into a teaching center for preparing new workers for eye services. This was possible because of the high quality of teaching in both the medical school and the school of social work, and because of the close working relationship between the two professional schools. In the two widely separated states of Louisiana and Colorado the demonstrations, started in 1932 and 1934 respectively, have deeply influenced the public provision of medical care for indigent eye patients under several provisions of the Social Security Act. Louisiana has emphasized restoration of sight for the needy blind, while Colorado is providing care for the eyes of children in rural areas. The influence of these demonstration centers travels in ever-widening circles as the workers are promoted to positions in new state programs—for instance, when a worker from the demonstration in Denver, Colorado, is appointed to the staff of the Maine State Department of Health and Welfare. The demand for skilled leadership in the last-named state was developed through preliminary surveys showing the problems, and not through a demonstration.

It is, of course, easier to evaluate the effectiveness of the earlier demonstrations than the more recent ones; these far-reaching results described above are a growth of over 8 years. The demonstrations started within the past two years are successful in providing skilled services to the patients, services which the ophthalmologists welcome as a part of the medical care of the patients. This much is shown by the ophthalmologists' requests to continue

the services. It is hoped that the early signs of wider influence now evident will not be cut off by the war pressures.

Courses

Much of the success in both the earlier and the later demonstrations is due to the careful preparation of selected personnel. Therefore a description of the special courses is presented.

In order to prepare skilled personnel for the eight demonstrations, a set of special courses has been developed and offered fifteen times to a total of 44 students. At first, a three months' course was given at the Massachusetts Eye and Ear Infirmary, where students without a bachelor's degree were accepted. Later, as the basic educational requirements for medical social workers were raised and other factors changed, the course was given at Washington University, St. Louis. The course was offered four times for 12 students in Boston, and eleven times for 32 students in St. Louis, beginning in 1933. Frequently the hospital requesting a fully prepared worker released someone already on its social service staff to take the advanced training; sometimes a new person acceptable to the agency, the University and the Society was sought. A summary of the general plan of the course as it has been for the past few years is as follows, although this plan is subject to change as circumstances and experience dictate.

SPECIAL COURSE FOR THE PREPARATION OF MEDICAL SOCIAL WORKERS FOR EYE SERVICES

- | | |
|----------------|--|
| Prerequisites: | (1) A bachelor's degree from a recognized college |
| | (2) A full course in a recognized school of social work, including medical social work |
| | (3) Some experience, preferably in a general service, such as pediatrics |
| Credentials: | (1) Write to the National Society for the Prevention of Blindness for application blank |
| | (2) When this has been accepted, send transcripts of previous education, both undergraduate and graduate, to Miss Ruth Lewis, George Warren Brown Department of Social Work, Washington University, St. Louis, Mo. |

Content of Course: Four units of study can be undertaken:

(1) Required:

- (a) Ophthalmological information taught by a member of the ophthalmological faculty of Washington University Medical School. Lectures and observation
- (b) Social aspects of eye conditions taught by Miss Ruth Lewis
- (c) Supervised medical social case practice in eye service of a hospital

(2) Elective:

A subject selected by the student with the consent of Miss Lewis, *e. g.*, community organization, psychiatric problems, public welfare administration

Credit: The usual university credits are given after the satisfactory completion of the examinations and other requirements

Limit: Four students

The number of students had to be limited to four because field work placements for more were not available. This supervised medical social practice and the thoroughness of the three supporting classroom courses requiring the full time of the student for an academic semester have been the chief differences between this method of preparation and other courses offered in several localities from time to time.

Of the 44 students, 11 were prepared for the demonstration centers; the others were accepted either at the request of a hospital or agency wanting to add skilled personnel, or occasionally at the students' own request, in the hope of finding openings later on in an eye service. Thirty-eight of the 44 entered eye services on completion of the course or a few months later. The geographical distribution of these students, as shown in Table I, is much wider than the distribution of the demonstrations. These 17 areas should be contrasted with the six states where the demonstration centers were located—thus the idea of employing workers really familiar with eye health has spread way beyond the immediate areas of the demonstrations and, in June, 1942, includes the northern and southern extremes of the eastern seaboard as well as Los Angeles

and Hawaii on the west. This geographical distribution tends to widen as time goes on.

TABLE I.—TYPE OF PLACEMENT AND GEOGRAPHICAL DISTRIBUTION OF FORTY-FOUR SPECIAL COURSE STUDENTS

<i>Location</i>	<i>Number of Students</i>			
	<i>First Placement</i>		<i>June, 1942</i>	
	<i>Eye Service</i>	<i>Other</i>	<i>Eye Service</i>	<i>Other</i>
California.....	1	..	..	3
Colorado.....	3	..	..	1
District of Columbia....	..	..	..	3
Florida.....	..	..	1	..
Hawaii.....	1	..	1	..
Illinois.....	4	..	2	3
Kansas.....	2	1	1	2
Kentucky.....	1	..	..	..
Louisiana.....	4	..	1	1
Maine.....	..	..	1	..
Massachusetts.....	1	..	1	..
Missouri.....	3	..	1	1
New York.....	3	2	..	4
Ohio.....	1	..	..	3
Oklahoma.....	1	..	1	..
Pennsylvania.....	11	..	7	1
South Carolina.....	1	1	1	1
Many states.....	1	1	..	2
Japan.....	..	1	..	1
Total.....	38	6	18	26

Of the 38 students who entered eye services on completion of their courses, only 18 were found to be still in eye services at the end of the review period. At first sight the shift of many of these workers from positions in eye services into more general positions may appear to be a loss, but the subdivision of the kinds of position held (see Table II) shows that as directors or supervisors of depart-

ments of social service, as teachers of medical social service in schools of social work, these people can and do spread an understanding of eye problems. Thus the loss in one respect is a gain in another. These promotions to positions of wider responsibility were inevitable for people of ability. The most striking change in recent years is the considerable proportion of the students who are in community programs—ten in eye health programs and six in more general programs, such as maternal and child health, venereal disease control, or medical care for public assistance categories where the specialized knowledge is genuinely valuable. This shift also often represents promotions in both salary and responsibility, for many workers are in state-wide programs. Among the present occupations listed in Table II under “other hospital services” are

TABLE II.—PRESENT OCCUPATION OF 44 STUDENTS, JUNE, 1942

Eye (a) clinics.....	8
(b) programs.....	10
Directors of Social Service Departments and Supervisors..	3
Other services in hospitals.....	5
Teaching social work.....	3
Programs, not eyes.....	6
Married, not working.....	5
Not known or studying.....	4
Total.....	<u>44</u>

two workers who are now with the Red Cross in Army or Navy hospitals. Further development of both the trend toward program positions and service hospitals may be expected to continue. On the other hand, the tendency of the married women to stop work may be reversed, especially among those whose children are old enough to go to school. It is to be hoped they may return to eye clinics, for the development of programs emphasizes the need for medical social service within the medical institutions if the best results are to be obtained. The complementary nature of the functions of the workers in the two types of agencies can not be described here but is clearly recognized. The general demand for fully prepared medical social workers has undoubtedly been stimulated by the 1940 merit system amendment to the Social Security Act, which also gives enough security of tenure in public

programs to attract a finer type person than the politically appointive positions could command.

Discussion

Returning to the basic questions of whether the demonstrations have accomplished a useful purpose, the definite answer is that the results have been even better and broader than was anticipated when the plan was initiated in 1931. The exact results of the demonstrations have been hard to measure for lack of statistical surveys of the situation prior to starting the demonstration and again as it draws to a close. Such surveys take much time and are usually considered luxuries. They are, however, the only source of objective data and should be encouraged. The eight demonstrations in six states have led to the distribution of about 40 skilled workers in 17 states functioning both in clinics and in community programs. This is a good beginning and one from which further growth may be expected as more descriptions of the value of integrating the medical and social techniques are published. The literature on the subject of eye patients has already been considerably enriched by the graduates of the course and further contributions may be expected.

The selection and preparation of personnel is the foundation of success in these projects, as in most others. Any plan for future developments must include provision for adequately preparing personnel, since the insistence on a high quality of worker has been one of the most constructive elements in the plan. The recent expansion of state merit systems as a means of selecting personnel to carry out the provision of the state and federal laws, including those bearing on restoration of sight and prevention of blindness, has brought about a highly desirable rise in the personnel standards. These services authorized by law will be carried on in some way. The continuing of courses is a valuable way of insuring future personnel for effective service.

There have not yet been enough demonstrations nor is ten years a long enough time in which to launch a new type of enterprise in the conservative ophthalmological world. Wider discussion of the projects and wider geographical distribution of the demonstrations

will help to bring growth in regions where rounded provision for care of the eye patient is still a matter of future development.

References

1. Berens, Conrad, M.D., and Taylor, Mary K., "Social Service and Follow-up in Ophthalmology," *Hospital Social Service*, Vol. XVI, 1927, pp. 89-103.
2. Philadelphia Hospital and Health Survey, 1929, Philadelphia, 1930, pp. 379-385.
3. Derby, George S., M.D., "The Need of Medical Social Service in Eye Clinics," *Journal of the American Medical Association*, vol. 98, no 5, January 30, 1932, pp. 394-395.
4. Hayes, Harry E., "The Restoration of Sight and Prevention of Blindness in Kansas," *Sight-Saving Review*, Vol. XII, No. 1, March, 1942, pp. 44-61.
5. Town, Arno E., "Eye Defects Discovered Through Selective Service Examinations," *Sight-Saving Review*, Vol. XI, No. 4, December, 1941, pp. 269-275.
6. Price, Mabel Lee, "A Study to Determine the Role of the Medical Social Worker in an Ophthalmic Service," *Archives of Ophthalmology*, forthcoming issue.
7. Jensen, August F., and Gradle, Harry S., M.D., "The Need for Social Service Work in Glaucoma," *American Journal of Ophthalmology*, September, 1939, ser. 3, vol. 22, no. 9, pp. 993-995.
8. Allen, Thomas D., M.D., Discussion of "The Problem of Preventing Partial or Total Loss of Vision in Glaucoma Patients of Eye Clinics; Some Suggestions for Remedial Measures," Mark J. Schoenberg, M.D., Transactions, American Academy of Ophthalmology and Otolaryngology, November-December, 1941.
9. Brader, Mrs. Georgia Mae, "A Study of the Discontinuance of Treatment by Patients Known to an Orthoptic Clinic." M.A. Thesis, Northwestern University, 1941.

News of State Activities

THIS Section is devoted to the reporting of sight conservation activities carried on by official and voluntary agencies throughout the country. It presents information supplied by these groups, and serves as a medium for exchange of experiences. Only brief and timely items can be used, because of the limitations of space.

Conservation of Vision Committees of State Medical Societies

When the National Society for the Prevention of Blindness inaugurated its "*News of State Activities*," it planned to incorporate not only news from voluntary and official prevention of blindness organizations, but reports from state medical societies which had, as part of their programs, the conservation of vision. With the exception of two or three state medical societies, however, there has been very little reporting. It is hoped, following the luncheon conference arranged by the Society for chairmen of state conservation of vision committees, the American Medical Association Committee on Conservation of Vision and Prevention of Blindness, and officers of the Section on Ophthalmology during the American Medical Association convention in Atlantic City, that future issues of the REVIEW will receive more frequent news from more state committees. Following is a brief report of the conference which took place in Atlantic City, under the chairmanship of Dr. S. Judd Beach:

The chairmen of seven state committees, three representatives of the American Medical Association Committee on Conservation of Vision, an officer of the Section on Ophthalmology, seven Society representatives, including three Board members and a member of the Advisory Committee, and one representative each of Brazil and Puerto Rico, participated. Dr. Harry Gradle, the new permanent Chairman of the American Medical Association Committee on Con-

servation of Vision, in discussing plans of the Committee, stated that he felt that every state medical society should appoint a conservation of vision committee and that these committees should study the specific prevention of blindness problems in their state. He enumerated the differences in these problems according to locality; for example, trachoma areas, industrial regions, and agricultural regions. In his opinion legislative problems were primarily the responsibility of the lay organizations and not the medical committees.

Dr. Gradle described the physical examination record booklet which is used in South American countries. Every school child receives a booklet when he enters school, and the school has a duplicate on file. This record is added to at each examination and is consulted by physicians outside the school if they are called for medical attention at any time. A similar system, Dr. Gradle felt, might be introduced by conservation of vision committees to the local health departments as a method of providing a check-up on the eyes of the children in the United States.

In closing, Dr. Gradle indicated that the conservation of vision committee of the medical society of each state will be asked to prepare a report for the next American Medical Association meeting, and a special conference of this group will be planned.

Following are listed briefly the thoughts expressed by the representatives of state committees:

Connecticut.—Dr. Herman Little, representing Dr. Eugene Blake, Chairman, mentioned that this Committee was only recently established. Plans for the future included the request for a speaker from the National Society for the Prevention of Blindness to address the fall meeting of the Connecticut Eye, Ear, Nose and Throat Society.

Indiana.—Dr. J. Cassady, representing Dr. Robert Masters, new Chairman of the Committee, indicated that his Committee had been influential in obtaining legislation controlling the sale and use of fireworks, requiring pre-marital examination and medical examination of all food handlers (mainly for venereal diseases). The present plans of the Committee include a campaign for educating the general practitioner in the early recognition of glaucoma. The Committee works closely with the Departments of Health and of Welfare.

Missouri.—Representing the Missouri Committee, Dr. Winfred Post reported that the control of glaucoma has been the main theme of its program. A comprehensive exhibit on the subject of glaucoma had been prepared and was being used at state and county fairs and at meetings of local medical groups—thereby reaching a great many general practitioners.

New Jersey.—Dr. Elbert Sherman, representing the New Jersey Committee, mentioned the subject of prevention of industrial eye injuries as the main problem which his Committee hopes to investigate.

Pennsylvania.—Dr. Thomas Gagon reported that his Committee has attempted to get the co-operation of county medical societies to carry out their campaign for educating the medical profession in the control of ophthalmia neonatorum, proper training for children with squint and early recognition of glaucoma. He stated that his Committee will endorse a revision of the Pennsylvania ophthalmia neonatorum law which will state that silver nitrate must be used within "4 hours after birth" instead of "soon after birth." In this connection he mentioned that these laws should be strengthened by including specific fines and penalties if provisions were not carried out. He frankly disagreed with Dr. Gradle concerning the medical profession backing certain legislation. He said that in these medical problems it was necessary for the doctors to safeguard the public against inadequate legislation. The Pennsylvania Association cooperates fully with this Committee and has repeatedly asked the Committee to act in an advisory capacity.

It is hoped that the Society may through this column present progress not only from the states mentioned above but any others in which conservation of vision committees are active.

* * *

Connecticut

"The Connecticut Board of Education of the Blind has expended the past year for its prevention of blindness activities \$2,853.50. Of this amount, \$968.50 was expended for ophthalmological examinations; \$867.65 for corrective surgical or medical treatment; \$778.85 for glasses; and \$238.50 for other services. Under the item of other services are included conservation of vision advice, large type books, readers, special diet, giant typewriters and transportation.

"The number of individuals who received ophthalmological examinations was 192, of whom ninety-eight were children. There

were thirty-five individuals who were given corrective surgical or medical treatment, of whom eight were children. One hundred fourteen individuals were furnished with glasses, of whom sixty-six were children. Social case work involving the prevention of blindness activities of the Board was extended to 419 persons, of whom 246 were children. Of the sum expended for glasses (\$778.85), \$563.75 was for serious eye defects. The Board of Education of the Blind employs a graduate nurse as mother's counsellor who devotes a major portion of her time to the conservation of vision and prevention of blindness activities of the Board."

—*Board of Education of the Blind,
Hartford, Connecticut*

District of Columbia

"That good lighting is more than a matter of electricity may be effectively suggested through a simple, home-made exhibit.

"We constructed two little living rooms by covering cartons, one with brown wrapping paper and the other with light-colored wall-paper. In the latter we used pale blue and yellow doll-house furniture, yellow curtains, a light-colored rug, and a number of toy lamps, properly placed. The top of the box was wired for a 7½ watt bulb.

" 'Real people' dolls, made of rubber, make the room more interesting. We added a child in a yellow suit and a woman in a light dress who sits under a lamp holding a book up in the approved manner. This carton is labeled the 'Goodlight Family.'

"The dark room we call the 'Poorsight Family.' Their furniture is brown and green, their draperies dark, their rug has a black background, and although the furnishings are as tasteful and well made as those in the contrasting room, an air of gloom abounds. A man in a black suit stands by the dark window and a girl in a navy blue dress reads comics on the floor. Two small flashlights represent inadequate lamps in the corners of the room.

"Explanatory placards may be added."

—*District of Columbia Society for the Prevention of Blindness,
Washington, D. C.*

Illinois

"The Illinois Society for the Prevention of Blindness offered a course of lectures to case workers in Chicago during the month of February and March. The course was offered in conjunction with the work on Blind Pension, which is sponsored jointly by the Cook County Bureau of Public Welfare and the Illinois Society for the Prevention of Blindness.

"There had been a feeling that a more intelligent referral for Blind Pension would be made if the case workers throughout Chicago understood more clearly the problems of prevention of blindness and restoration of vision.

"The following course of lectures was offered:

- "1. Preventing Blindness in Illinois, Audrey M. Hayden.
2. The Normal Eye and How it Functions, Peter Kronfeld, M.D.
3. Diseases of the Eye as They Occur in Adult Life, Glenway W. Nethercut, M.D.
4. The Eyes as Affected by General Health, Peter Kronfeld, M.D.
5. Present Policies on Blind Relief in Cook County, Ruth Douglass.
6. Psychological Attitudes of the Visually Handicapped Toward Treatment, Ruth Emerson.
7. Field Trip to the House of Vision.
Field Trip to Illinois Eye and Ear Infirmary.

"Eighty-five people registered for the course. The registrants were case workers from the Cook County Public Welfare Board, the Divisions on Old Age Assistance, Aid to Dependent Children, and Blind Pension Service; Chicago Relief Administration, Jewish Social Service Bureau, United Charities, Salvation Army, Douglass Smith Foundation, Board of Education. Case workers from the following hospitals attended the lectures:

"University of Chicago Clinics, St. Luke's Hospital, Provident Hospital, Mt. Sinai Hospital, Cook County Hospital, Northwestern University Clinics, Women's and Children's Hospital and Mercy Free Dispensary.

"Great interest in the course was shown by those taking it."

—*Illinois Society for the Prevention of Blindness,*
Chicago, Illinois

Kentucky

"*Development and Progress of Public Health Work in Kentucky.*—There is probably nothing in public health more dramatic or better illustrative of accomplishments in a campaign against a single disease than the program for the eradication of trachoma in Kentucky. From 1912 to 1917, the United States Public Health Service, in co-operation with the State Board of Health, established five hospitals for the treatment of this disease, four located in eastern and southern Kentucky, and one in the western part of the

state. In that early period this maiming disease of the eye was widely prevalent in many counties; in one county of eastern Kentucky it attacked, either in mild or more severe form, as many as sixty per cent of the entire population. With the aid of these hospitals and co-ordinated efforts on the part of the state and county health workers, trachoma has been gradually overcome until now no county in the state has more than three per cent of its population afflicted. At present only one hospital, with a bed capacity of thirty-five, is maintained—that at Richmond. Many thousands of Kentucky citizens have been saved from visual defects or blindness from this disease.

“Coincident with the campaign for the prevention or relief of trachoma, state and local health workers have devoted all the energies possible to the prevention or relief of gonorrheal ophthalmia in the newborn. All physicians and midwives in the State are kept supplied with ampules of silver nitrate solution and are required to instil in the eyes of the newborn this drug for the prevention of gonorrheal ophthalmia, with the result that this disease has been held to a minimum. However, each year there have been some cases, and it is here that Miss Linda Neville of Lexington, Kentucky, with the aid of funds secured through her own individual resources, and, in more recent years, supplemented by state funds especially provided, has accomplished results that almost stagger the imagination. In the last thirty-three years this good woman has been able to get the best scientific medical services available for the intensive treatment of babies afflicted with ophthalmia neonatorum. Universally, the eye specialists have given their services without cost to save a very great number of these little ones from ultimate blindness. Health officers throughout the state are able, on a moment's notice, to get hospitalization and treatment, and Miss Neville responds day or night. Her files are replete with some of the most dramatic incidents of precious little babies being saved from blindness. In addition, a corresponding service has been made available to other children and adults, with other remedial eye defects, who are not able to procure scientific treatment for themselves. Many hundreds of children examined in schools and at preschool clinics, found with defects of vision and known to be retarded in their school progress, have been supplied with corrective glasses. Here again the results have been spectacular.”

Maryland

“Miss Eileen Lester, formerly connected with the Institute of Ophthalmology of the Presbyterian Hospital in New York City,

was appointed Executive Secretary of the Maryland Society for the Prevention of Blindness on January 1, 1942, succeeding Mrs. Francis Woodward Little, who resigned after fifteen years of service.

"The president of the Society, Mr. Edward Esher Yaggy, Jr., is now serving as Captain in the United States Army Air Corps, and Mr. G. Wilson Younglove, Illuminating Engineer of the Gas and Electric Light and Power Company of Baltimore, has been appointed to succeed Mr. Yaggy.

"After five years of untiring efforts, the Fireworks Bill, sponsored by the Society and actively supported by almost every organization in Maryland, passed the Legislature and was signed by the Governor. After the Governor signed the Bill, the fireworks interests circulated a petition for referendum. If this petition had complied with the Maryland law with respect to referendums, the Fireworks Bill would not have gone into effect until after it had been submitted to and approved by the voters of Maryland at the next general election in 1942.

"The existence of the petition did prevent the Bill from being enforced in 1941, but due to the publicity and warnings arising out of the legislative fight and to rules promulgated and enforced by the Insurance Commissioner, injuries during the past Fourth of July celebration were substantially reduced.

"Further delay has been prevented by the decision of the Circuit Court of Baltimore City, which ruled that certain statutory provisions pertaining to petitions for referendum had not been complied with, and that the petition was invalid and void. The result of the litigation is that the Bill as passed by the Legislature and signed by the Governor is now the law of Maryland."

—*Maryland Society for Prevention of Blindness,
Baltimore, Maryland*

Minnesota

"The Minnesota Society for the Prevention of Blindness is conducting a survey of the eyes of school children in rural Hennepin County. The project has been endorsed and aided by the Minnesota Academy of Ophthalmology and the Minnesota Society for the Prevention of Blindness and Conservation of Vision, with the cooperation of the Minnesota State Medical Association, the Hennepin County Medical Society, and the Public Health Agencies.

"The program started in April and will continue until rural schools close, to be continued in the fall of 1942. Vision tests are made by nurses and medical eye examinations by eye specialists. An analysis of the types of visual defects found and their causes,

with definite recommendations for their correction, will be available, to lay a foundation for further surveys in other counties. Co-operation of the ophthalmologists of Hennepin County has been assured and arrangements are being made to care for the medically needy in free clinics. Eye conditions requiring treatment, refraction or sight-saving facilities are reported to the family physician, who in turn refers the child to an ophthalmologist for more complete examination and treatment.

"The results of this survey should serve as an index for eye conditions in other counties and stimulate attempts to carry out Conservation of Vision Programs in their rural schools. The project should result in saving of eyesight of many rural students who otherwise would not receive care. It will further demonstrate the importance of *complete eye examinations* as a part of physical examinations of all pupils of school age."

— *Minnesota Society for the Prevention of Blindness and Conservation of Vision, St. Paul, Minnesota*

New Hampshire

"For the first time in the thirty-seven years of the history of the New Hampshire Conference of Social Welfare, Sight Conservation was one of the seven sectional group meetings at its annual meeting in January, 1942.

"Mrs. Eunice W. Wilson, Director of Social Service, Massachusetts Eye and Ear Infirmary, Boston, Massachusetts, spoke on the 'Responsibility of the Social Worker in Sight Conservation.' Mrs. Wilson brought out the fact that there was no category which did not offer the social worker a challenge to participate in a sight conservation program. The importance of finding cases and the follow-up for treatment regardless of category were among the points emphasized.

"The workers that were present enjoyed hearing Mrs. Wilson and felt that she gave a great deal. Those who could not attend and yet have been fortunate enough to read her paper realize how much good material she had to offer to the social workers, not necessarily in medical social work.

"The membership of the Conference is not large. Therefore, the attendance of twenty-six people representing four different organizations was considered excellent.

"In the May, 1941, meeting of the New Hampshire State Medical Society, the Medical Advisory Committee of Ophthalmologists to the Department of Public Welfare sponsored a speaker on glaucoma. As a result the doctors feel that the general doctor has been more conscious of glaucoma.

"After the National Society for the Prevention of Blindness annual meeting in New York City, December 4, where glaucoma and the follow-up of glaucoma cases were discussed at some length, the Medical Advisory Committee of Ophthalmologists gave their approval for the Department of Public Welfare to request all the ophthalmologists in the state to send a follow-up letter to their own glaucoma patients who do not return for treatment. The purpose is to get the patient under adequate ophthalmologist's care. Responses to this letter to the ophthalmologists are gradually beginning to come in."

—*New Hampshire State Department of Social Welfare,
Concord, New Hampshire*

Pennsylvania

"The increasing awareness of the values of volunteer service prompts us to report about the invaluable help which we have been receiving for some time from a group of young married women. These women have been trained to assist in vision testing, and make excellent assistants; those who typewrite have been copying material on bulletin typewriters for visually handicapped children, the other members proofread the typed material. In addition to this they make a yearly contribution toward the purchase of twenty-four-point type books for our sight-saving library. They are the fairy godmothers to our program of sight-saving work for the isolated rural child!"

—*Prevention of Blindness Department, Pittsburgh Branch,
Pennsylvania Association for the Blind, Pittsburgh, Pennsylvania*

Tennessee

"Sight Conservation Activities from November 1, 1941, to May 1, 1942.—During this six months period the Sight Conservation Service has been engaged in the following activities:

"1. The continuation of its various surveys of the blind to determine the causes of blindness.

2. The organization of a teacher-training course for sight-saving class teachers for Tennessee and the South.

3. The restoration of sight to citizens of Tennessee.

4. The prevention of blindness to citizens of Tennessee.

5. The finding of children eligible for enrollment in sight-saving classes.

6. The education of the general public and the medical profession as to the causes of blindness prevalent in the state.

"During this period 130 new cases of total and partial blindness have been surveyed and added to the combined survey, which now

includes 3,850 cases of total and partial blindness in the State. The most important causes of blindness prevalent in Tennessee, according to this survey, are:

1. Cataracts, except traumatic	17.92%
2. Ocular injuries	10.50%
3. Hereditary eye conditions	9.97%
4. Acute infectious and contagious diseases	8.47%
5. Syphilis of the eye	8.36%
6. Glaucoma	6.96%
7. Refractive errors	6.57%
8. Congenital defects	3.96%
9. Ophthalmia neonatorum	2.92%
10. Focus of infection	2.64%
11. Sympathetic ophthalmia	1.74%
12. Cardiovascular diseases	1.41%
13. Neoplasms of brain and eye . . . . .	.82%
14. Pterygium . . . . .	.77%
15. Systemic diseases . . . . .	.61%

"Of these 3,850 cases, 2,154, or a total of 56 per cent, have a chance to have varying degrees of sight restored to them in one or both eyes, by various ophthalmological procedures, and 2,529 of these cases, or a total of 65 per cent, might have had blindness in one or both eyes prevented for them by proper ophthalmological and general care.

"A teacher-training course for sight-saving class teachers has been organized through the efforts of the Service, and George Peabody College of Nashville has agreed to give this course this summer, beginning June 20, and terminating August 1.

"During this period 107 persons, 86 being children and 21 being adults, have had varying amounts of sight restored to them in one or both eyes, either by surgery and glasses, surgery alone, treatment, or by glasses alone.

"Also, during this period, 59 persons, 53 being children and 6 being adults, either have had or are having total, occupational or partial blindness prevented for them in one or both eyes. The various causes from which this blindness is being prevented are: amblyopia and hyperopia, amblyopia and myopia, entropion, retinal detachment, progressive myopia, syphilis and trachoma.

"Thirty-six children have been found who, because of serious visual defects, are eligible for enrollment in sight-saving classes, and two sight-saving classes, one for Davidson County and one for Sumner County, have been approved by the school boards of each of these counties for the next school year. Scholarships for the training of teachers for these two classes are being sought by the

State Health Department from the United States Public Health Service under its training program.

"Five talks have been made by the Director of the Service, 3 before medical students, one before the South Pittsburgh Lions Club of Marion County and one before the Eye, Ear, Nose and Throat Section of the Tennessee Medical Association on the 'Causes of Blindness in Tennessee and Their Prevention.' "

—*Sight Conservation Service, State Department of Public Health,
Nashville, Tennessee*

Washington

"At the meeting in June, 1941, representatives from the five state teacher-training colleges, the State Departments of Public Instruction and of Health, and the Division for the Blind of the State Department of Social Security (including both staff members and advisory ophthalmologists), approved a standard plan for presenting to teacher-training students during 1941 and 1942 material on eye health and sight conservation. This presentation was to be made by ophthalmologists in the state and the Medical Social Work Consultant in the Division for the Blind.

"During this college year the plan has been carried out to the extent of regular meetings by ophthalmologists and Medical Social Work Consultant with health education classes in two of the state colleges of education, on a schedule which will ultimately reach all students finishing the regular four-year course; one meeting by the Medical Social Work Consultant with students at the third state college of education, where the curriculum in health education is in the process of revision; and meetings by ophthalmologists and Medical Social Work Consultant with some classes at the state university. The total number of students reached in these classes is at least 250. It is the hope of those concerned in this program, particularly the Division for the Blind and the State Department of Public Instruction, that ultimately all teachers trained in the state institutions of higher education will have received authoritative instruction on eye health and the teacher's responsibility for sight conservation. A follow-up meeting is planned for June, 1942, to examine the results of the program during the past year and to make recommendations for future activity.

"The 1941 session of the state legislature passed a bill providing that the State Superintendent of Public Instruction should establish a library of sight-saving materials to be available on loan to public schools having visually handicapped students, but not enough to establish a special sight-saving class. As no special funds were made available to implement this legislation, the

Medical Social Work Consultant of the Division for the Blind has given consultation service to schools with single visually handicapped children during the past year, at the request of the State Department of Public Instruction and in close co-operation with its staff. Response from schools in various parts of the State has been gratifying, and 8 visually handicapped children in 7 different schools have been served by this means. Follow-up study is planned to determine the progress of the children under this plan. In addition plans have been worked out for establishment of a new sight-saving class in a community which has not previously offered this service to its visually handicapped children. Actual opening of the class awaits only securing a trained teacher.

"On November 1, 1941, there went into effect a previously voted ruling of the Medical Eye Advisory Committee of the Division for the Blind requiring certification by the American Board of Ophthalmology for any ophthalmologist doing eye surgery under the Division's treatment and surgery program. This has tended to centralize performance of eye surgery under the program in a few cities in the state, and makes it necessary for more persons to go outside their home counties for eye care, but assures them the services of surgeons meeting the standards set up by the medical profession for this specialty."

—*Division for the Blind, State Department of Social Security,
Olympia, Washington*

Note and Comment

New Army Policy in Visual Standards.—An order issued by the Surgeon General of the Army and published in *The Journal of the American Medical Association* for March 28, lists a wide variety of physical defects which heretofore have stood as a barrier to service in the Army as now being considered acceptable for limited service with waiver. In addition there are enumerated a number of conditions on which waiver may be accepted for general military service. The eye conditions now permissible are indicated as follows:

“Vision 20/400 in each eye corrected with glasses in possession of the examinee to 20/20 in one eye and to at least 20/40 in the other, provided no organic disease of either eye exists.

“Blindness, or vision below 20/400, in one eye with vision 20/100 corrected with glasses in possession of the examinee to 20/20 in the other, provided there is no organic disease in the better eye and no history of cataract or other disease in the more defective eye which might be expected to involve the better one, and provided that, in case of the absence of an eye, the individual is fitted with a satisfactory artificial one.

“Complete color blindness.”

Light Colors Painted on Machinery Improve Seeing.—Color contrast and brighter colors than the usual dark green or gray of machine tools increase the accuracy of seeing, provide more comfortable working conditions, increase production and reduce accident hazards, Arthur A. Brainerd of the Philadelphia Electric Company and Matt Denning of the du Pont Company found, after a two-year investigation. Light buff and light gray gave the best results of the solid colors, with aluminum color and light blue next in line. The most satisfactory of all, however, was found to be a two-tone scheme in which all machines were painted “horizon gray” and the working area “spot-lighted” with light buff. The work is being continued in several industrial plants, the experimenters said, and further data will soon be available.

Former REVIEW Editor Awarded Medal.—The Leslie Dana Gold Medal, awarded annually for outstanding achievements in the prevention of blindness and the conservation of vision, will be presented this year to Lewis H. Carris, Director Emeritus of the National Society for the Prevention of Blindness, it was announced here today. The time and place of the presentation have not been decided as yet.

Mr. Carris was selected for this honor by the St. Louis Society for the Blind, through which the medal is offered by Mr. Leslie Dana of St. Louis. This highly prized token of recognition in the field of public health is given upon the recommendation of the Association for Research in Ophthalmology.

Until his retirement in 1939 from active service as Managing Director of the National Society for the Prevention of Blindness, with headquarters in New York City, Mr. Carris was for two decades in command of the forces carrying on the fight for protection of eyesight in America. He has also been closely identified with the work of various other public health and social welfare organizations. He was formerly Vice-Chairman of the New York State Commission for the Blind and was formerly Vice-President of the National Health Council; in 1929 he took a leading part in the formation of the International Association for Prevention of Blindness at a conference at The Hague, and served as its American Correspondent thereafter.

Mr. Carris, who is seventy-two years old, maintains a summer home in Bainbridge, New York, and a winter residence in Venice, Florida. He has received degrees from Hobart College and Columbia University, and he also attended Union College and Harvard University. Hobart College made him a Doctor of Laws in 1933.

Before entering the field of sight conservation at the close of the First World War, Mr. Carris was a well-known educator. When the Federal Board for Vocational Education was established in 1917, he was appointed Assistant Director of Industrial Rehabilitation and subsequently became Administrative Head of the Board.

The conditions of the Leslie Dana Medal award set forth that it is to be made for "long meritorious service in the conservation of vision, in the prevention and cure of diseases dangerous to eyesight; research and instruction in ophthalmology and allied sub-

jects; social service for the control of eye diseases; and special discoveries in the domain of general science or medicine of exceptional importance in conservation of vision."

Farsightedness and Visual Clarity.—Farsighted persons cannot see distant objects more clearly than persons with normal eyesight, *Hygeia*, *The Health Magazine* points out in answer to an inquiry.

"The so-called far-sighted eye is smaller than the normal eye," *Hygeia* says, "and therefore parallel rays of light focus behind the sensitive screen (retina). For the far-sighted person to see far objects clearly it is necessary for the lens muscle to help in bringing the focus on the retina; the normal eye sees the distant object without any muscular effort. With this muscular action the far-sighted person may be able to see objects at a distance just as clearly, but certainly no more clearly, than one whose eyesight is normal."

Explosives Manufacturers Warn Against Blasting Caps.—The Institute of Makers of Explosives is distributing literature in an educational campaign to protect children from the dangers of playing with blasting caps. Many boys and some girls have been killed and many have been blinded or otherwise seriously injured in playing with or handling explosive caps. Most of the blasting caps are found by children where they have been left by careless adults. The children hammer, pick, throw them in fires, or otherwise explode them. The result is nearly always painful or crippling. The great majority of such accidents take place either in rural localities or near small towns, and about 90 percent of the victims are boys.

American Recommended Practice of Industrial Lighting.—On March 17, *American Recommended Practice of Industrial Lighting*, a report prepared by the Committee on Lighting Practice of the Illuminating Engineering Society, with the active collaboration of a Sectional Committee organized under the procedure of the American Standards Association, received official approval as American Recommended Practice A-11—1942 from the American Standards Association.

Of recognized importance to the efficiency of the nation's war effort in that it presents factory owners and operators with a guide

to good, up-to-date lighting practice, this comprehensive report is intended to supersede the I.E.S. revised "Code of Lighting: Factories, Mills and Other Work Places," which was approved as an American Standard in 1930. "Recommended Practice of Industrial Lighting" was originally issued in 1939. Subsequently, it underwent several revisions based on new developments in light sources and equipment, and in June, 1941, it was submitted for approval to an A.S.A. Sectional Committee on Industrial Lighting, composed of representatives from 23 societies and organizations whose opinions were based upon experiences gained in widely separated fields. This committee included manufacturers, employers, employees, independent experts and educators, insurance representatives, utilities, and governmental bodies, such as the United States Department of Labor, the Navy Department and the War Department.

Following acceptance by this Sectional Committee, "American Recommended Practice of Industrial Lighting" was approved on December 11 by the Council of the Illuminating Engineering Society, and on December 12 it was submitted to the American Standards Association, where it has been undergoing final standardization procedure prior to its recent official acceptance.

The distinguishing feature of this new edition of I.E.S. industrial lighting recommendations is its emphasis upon basic principles of good lighting, including the "vital correlation between lighting and plant safety, the salient differences between good and poor illumination, and some of the precautions which must be observed before adequate and suitable lighting—and, hence, good seeing—can be achieved and maintained."

The benefits which good illumination can bring to an industrial plant are outlined and commented upon in this report. Although the advantage of increased safety is stressed, greater accuracy of workmanship, expanded utilization of floor space and improved morale are also pointed to as means of speeding up industrial production through better lighting.

Factors of good illumination are discussed in detail with regard to both quality and quantity of light. Specific attention is paid to glare and to distribution and color of light, and minimum standards of illumination are recommended, with minimum operating foot-

candles for various seeing tasks in many different industries. Both natural and artificial lighting, as well as the problems relating to maintenance and wiring, is considered, and authoritative information on these subjects is presented. The volume also contains an extensive and workable bibliography and numerous halftone illustrations supplementing the text.

Test of Loss of Vision.—Electroencephalography, a method of recording the electrical activity of the brain, roughly analogous to the use of electrocardiography in studying the activity of the heart, is a reliable objective test of true as opposed to malingering or hysterical blindness, Frederick Lemere, M.D., Seattle, declares in *The Journal of the American Medical Association* for March 14.

"As there has never been a reliable objective test for blindness," Dr. Lemere says, "a physician suspecting hysterical blindness or malingering may be unable to confirm his diagnosis. Conversely, the physician may feel confident that a patient is not a malingerer and yet be unable to prove genuine blindness. It was just such a situation that led to this study. The value of a reliable objective test for blindness, especially in compensation cases and in military medicine, is obvious. . . ."

He explains that the most prominent brain waves are the alpha waves, with an approximate rhythm of 8 per second. These waves appear on the electroencephalograph only with the eyes shut, as they arise almost entirely from the visual cortex and are broken up when the eyes are open and the subject looks at an object.

"A uniform visual field of light or dark, or even a field containing blurred indefinite outlines," the doctor continues, "usually does not interrupt the alpha rhythm. It requires a definite visual pattern to break the alpha rhythm. If a blind or partially blind subject attempts to look at an object, such as a pencil, and the alpha waves persist, one can conclude that there is not enough vision left to distinguish objects or to be of practical value to the patient. On the other hand, if a supposedly blind person is asked to open his eyes and look around and the alpha waves stop, one can conclude that there is enough vision left to distinguish objects at least, and one can with reasonable safety make a diagnosis of malingering or hysterical blindness. . . ."

Current Articles of Interest

Clinical Observations Using Certain Factors of the Vitamin B Complex as Therapeutic Agents in Ophthalmology, William B. Clark, M.D., *Southern Medical Journal*, May, 1942, published monthly by the Southern Medical Association, Empire Building, Birmingham, Alabama. Dr. Clark reports the following conclusions:

"1. While certain factors of the vitamin B complex seem to be of definite value in the treatment of certain eye diseases, the indiscriminate use of them without careful preliminary study of the patients will undoubtedly lead to disappointment in many instances.

"2. More work should be done in an effort to determine which cases of superficial corneal vascularization are due to ariboflavinosis and which are due to other causes.

"3. The use of vitamin B₆, or pyridoxine, in the treatment of hypocyclusis opens a new field worthy of further investigation."

The Experimental Radiography of Small Fragments of Glass in Relation to the Human Eye, R. U. Gillan, *The British Journal of Ophthalmology*, March, 1941, published monthly by the British Journal of Ophthalmology, Ltd., London, England. The author presents the following practical conclusions:

"1. That most kinds of glass in common use are opaque to x-rays.

"2. That small fragments of the order of $\frac{1}{2}$ -2 mm. in thickness show an opacity when exposed through the thickness of the eye and eyelids, and in addition through the thickness of the skull, but that fragments of under 1 mm. in thickness may be difficult of detection in such conditions.

"3. It may be concluded that pieces of glass actually in the eye or orbit and exposed to x-rays under comparable conditions would also show, but that, having regard to the somewhat greater distance of the foreign particles from the film in such a case, fragments of under 1 mm. in thickness would *a fortiori* be difficult of detection."

Gas-Gangrene of the Eye, Alexander G. Cross, M.B., *Lancet*, November 1, 1941, published weekly by E. & S. Livingstone,

Edinburgh, Scotland. The author considers the published reports of cases of gas-gangrene panophthalmitis and describes twelve cases treated at the Royal London Ophthalmic Hospital. The panophthalmitis developed in each case within twenty-four hours after the perforating wound of the globe and was accompanied by severe pain but little general disturbance. Evisceration was performed in each case at the Ophthalmic Hospital and recovery was rapid. No deaths have been reported from this condition.

Hereditary Optic Atrophy With Dominant Transmission and Early Onset, Major J. Graham Scott, *British Journal of Ophthalmology*, October, 1941, published monthly by Pulman, George & Sons, Ltd., 24-27, Thayer Street, W. 1, London, England. The author presents two families, totalling over 250 members, 61 of whom had optic atrophy. Of these, 32 were male and 29 female. Onset, gradual and unnoticed, occurred at about three years of age. He found that color vision was not lost early, and that there was no subsequent deterioration or improvement of visual acuity. The base of the "hill of vision" was normal, but the peak was lost. The disc was white, edges clear-cut, deep cup; the remainder of the fundus was normal, bar the absence of the normal light reflex at the macula.

Interpretation and Evaluation of Tests for Strabismus, William T. Davis, M.D., and Ernest Sheppard, M.D., *Southern Medical Journal*, June, 1941, published monthly by the Southern Medical Association, Birmingham, Alabama. The author carefully reviews the importance of the history, perimetric measurements, screen testing, excursions and rotations, convergence, vergence, and diplopia tests, sensorial relationships, and the Maddox rod. He points out that, in the majority of strabismus cases, more than one test is necessary, and it is the comparison of the findings that gives the necessary diagnostic information. The personal equation and the psychological effect of squint on a child should be considered. The author concludes that it is becoming increasingly important from an occupational viewpoint to obtain not only a cosmetic but a functional cure, the latter of which, in the majority of cases, cannot be obtained without the aid of orthoptic training.

Book Reviews

MODERN FACTORY LIGHTING, Including Special Wartime Requirements. Issued jointly by the British Electrical Development Association and the E.L.M.A. Lighting Service Bureau. Colchester, London & Eton: The Ballantyne Press, 1940. 140 p. ill.

This concise handbook on factory lighting very aptly begins with a discussion of vision. The reader is reminded that following a million years or so of development of the human race during which visual demand was limited to viewing large objects under daylight conditions, human eyes have had only about one hundred years to become accustomed to modern conditions of exacting visual concentration, much of it under artificial light, and all of it with a much shorter night period for recuperation; that industrial development has outrun evolution.

The discussion of the relation of visual acuity to illumination cites the investigation of Dr. R. J. Lythgoe, and his conclusion ". . . that the increase of visual acuity continues up to, and probably beyond, 1,275 foot-candles, providing that the surroundings are adequately illuminated."

Speed of vision is illustrated by a chart in which "it will be seen that the gain is maintained steadily as the illumination is raised."

Over a half million pounds sterling of accident compensation cost is attributed to bad lighting. The effect of illumination on production, reduction of spoilage, psychology and health, all correspond with American experience, and demonstrate that proper illumination is an essential element of good industrial management.

Chapters 2, 3 and 4 deal with technical details of British practice in illumination, including computations to determine the overall cost of lighting using these systems.

Chapter 5, on special industrial problems, is particularly valuable for its illustrations and suggestions covering special types of lighting for various industrial problems. The advantage of directional lighting over diffused lighting for certain types of industrial visual requirement is particularly important, because it corrects a popular fallacy that shadowless lighting is always best.

Wartime control of factory lighting is dealt with in the last

chapter of the book. Black-out arrangements are described and illustrated in detail. The arrangements include stationary and movable shutter devices to permit ventilation without light showing, provision for loading bays for trucks with efficient light traps and "light locks" whereby trucks may enter or leave lighted buildings under black-out conditions.

The appendices deal with technical matters more particularly of interest to the illuminating engineer, and include bibliography of recent scientific investigations of lighting in industry.

The volume suggests that our English cousins are abreast with us, if not advanced, in their viewpoints on illumination as a production factor. The book is a fine piece of informative writing and compilation, and worthy the attention of industrial managers.

—CHARLES P. TOLMAN

PLAY FOR CONVALESCENT CHILDREN. Anne Marie Smith. New York: A. S. Barnes and Company, 1941. 133 p.

Because eye patients recovering from acute conditions or exacerbations of a chronic condition are often told to curtail reading or other close eye work, the new book, called *Play for Convalescent Children*, has many values for all those concerned with eye patients. The main theme of the book is how to make the recovery period one of progressive development of constructive attitudes instead of a time for growth of invalid habits of self-pity. Some of the retrogressions to childish attitudes common in all illness and the frustration due to cutting off of usual recreational outlets could be obviated in eye patients by the use of planned recreation. The general principles outlined and most of the methods described are applicable to adult patients as well as children, although they are presented on the basis of an experiment in a large children's hospital with a twelve-year age limit. The recommended forms of recreation demand active participation by a patient—not necessarily physical activity but genuine participation—so that his attention is focused on matters outside of himself. Slight adaptations and additions would, of course, be made by anyone with sufficient insight into human behavior and imagination to utilize the content of the book. The restriction for individual patients would vary but would always be the guiding factor.

Considerable space is devoted to the nurse and how the disciplinary problems of the ward may be solved before they arise by the use of simple play techniques. The play leader served as instructor to the student nurses in this aspect of their work just as she was teaching volunteer recreation aids and students in the Sociology Department, Northwestern University. Undoubtedly these teaching relationships stimulated the thoughtful work done and the effort to share the experience gained with others.

It is a pity that the writer of the book, who is staff instructor, Leaders' Training School, Community Recreation Service, Chicago, draws so heavily on the authority of others rather than devoting a larger proportion of the space to the content of the experimental work carried out over about ten years. Another defect is the assumption that everyone is familiar with the names of countless games the play leaders use. Probably the author counted on a more limited and homogeneous set of readers than this reviewer believes will find the book both useful and stimulating. Perhaps the largest single group who will find this book full of helpful suggestions is the parents of children who are ill or the relatives of older patients. If nurses and social workers, teachers and those responsible for children in time of "incident" have not read it because of the needs of their own relatives, they will sooner or later want the wealth of helpful material in it for use in their work. Those who need to be able to gain the confidence of children or helpless people in a short time will find both practical and ingenious ways of reaching their objective. One of the smaller groups of people who will find *Play for Convalescent Children* specifically helpful are the staffs of all convalescent institutions. The boards of managers will surely appreciate the lists of books and games found most useful; these should lead to economy of time in selection of materials.

—ELIZABETH G. GARDINER

Briefer Comment

FUNDAMENTALS OF PHYSICAL EXAMINATION. George G. Deaver, M.D. Philadelphia. W. B. Saunders Company, 1939. 265 p.

Designed as a manual for nurses, physical educators, teachers and medical social workers, this volume concisely describes the presenting symptoms of abnormal functioning of the body systems. Of particular interest to readers of the REVIEW is the chapter on the diseases of the eye, covering procedures of examination for visual acuity, lateral and vertical imbalance, ametropia, etc., and emphasizing the importance of early recognition of external affections.

AN ACCOUNT OF TWELVE MONTHS OF HEALTH DEFENSE: Containing the Activities of the Health Department of the City of New York for 1940, with Comparative Vital Statistics Tables and a Review of Developments since 1934. Fiorello H. LaGuardia, Mayor; John L. Rice, M.D., Commissioner of Health. Department of Health, City of New York, 1941. 283 p.

This is a book of straight factual information on trends in public health problems in New York City. The tabulated material includes detailed statistics on diseases of pregnancy and childbirth; diseases of the nervous system and sense organs; the major causes of death in New York City, and the national, racial and age groups among whom the greatest number of yearly deaths occur; and charts of births by many factors, including sex, attendant at delivery and serological test for syphilis.

Increasingly thorough parochial and public school examinations are reported and new methods described for bringing children with definite health problems to the physician's attention. The year 1940, incidentally, was the first year in which vision testing instructions were given to teachers in the parochial schools of the Bronx, Manhattan, and Richmond—although the city's public schools have been employing the Snellen test for years.

There is a brief report on examinations made during the year in the Department's 16 eye clinics and on the number of children sent to sight-saving classes conducted by the Board of Education.

Several chapters are devoted to the larger subjects of tuber-

culosis and venereal disease control, food and drug inspection, and the administrative set-up of the many departmental units concerned.

THE PUBLIC HEALTH NURSE IN ACTION. Marguerite Wales, with a foreword by Lillian D. Wald. New York, 1941. 437 p.

The former general director of the Henry Street Visiting Nurse Service has prepared this attractive volume primarily for undergraduate nursing students who plan to do public health work, and for nurses doing graduate work in that field. However, it is not intended to be a manual or textbook. It is the purpose of the book "to show how nurses in the field apply the general principles formulated by the standard texts." Nurses all over the United States contributed the detailed case studies and reports which make up the book. The principles of nursing which are demonstrated in the informal narrative are printed in italics and made to stand out from the main body of the text, so that they may be read first in their entirety.

The rôle of the public health nurse as educator is emphasized, and, in a large section devoted to care of mothers and babies and to infant and preschool health, each illustrative case history stresses the public health nurse's importance in adapting generalized health principles to the specific living habits and economic status of the individual family.

Contributors to This Issue

Olga Sitchevska, M.D., is a practising ophthalmologist in New York City, assistant surgeon at the New York Eye and Ear Infirmary, and attending ophthalmologist, New York Infirmary for Women and Children.

The executive director of the National Society for the Prevention of Blindness, **Mrs. Eleanor Brown Merrill**, needs no introduction to readers of the REVIEW. She is also secretary of the National Health Council for 1942.

Homer B. Field, M.D., is from the Department of Ophthalmology, Northwestern University Medical School, Chicago.

C. W. Rutherford, M.D., is the Indiana state supervising ophthalmologist, Indianapolis.

As supervisor of the Division of Child Welfare, Oklahoma Department of Public Welfare, **Laura E. Dester** brings the benefit of her experience to her subject in this issue of the REVIEW.

A practising ophthalmologist in New York City, **J. Vincent Flack, M.D.**, is at present serving in the United States Navy Medical Corps as a Lieutenant Commander.

Elizabeth G. Gardiner, a past president of the American Association of Medical Social Workers, has been directing the Society's medical social work program for the past three years.

Book reviewers: **Charles P. Tolman**, an ex-president of the National Safety Council and closely associated with its policies for many years, is acting as consulting engineer on the Society's staff in connection with its industrial program; and **Elizabeth G. Gardiner**, mentioned above.

The Sight-Saving Review

Volume XII

Number 3

September, 1942

Table of Contents

	PAGE
FIRST AID FOR EYE INJURIES, Arno E. Town, M.D.	163
TWENTY YEARS IN SAVING SIGHT, Lewis H. Carris	168
NUTRITIONAL DEFECTS AND THE EYES, Benjamin Rones, M.D.	178
ADMINISTRATIVE PROBLEMS OF EYE CLINICS IN CARING FOR GLAUCOMA PATIENTS, Virginia Smith	182
CARE OF THE EYES IN MIDDLE AGE, Willis S. Knighton, M.D.	190
THE OPHTHALMOLOGIST AND THE PARTIALLY SEEING CHILD, Winifred Hathaway	196
THE FORUM:	
The Industrial Worker—His Eyes, Alma Ebling	201
The First Inter-American Congress on the Prevention of Blindness, Matthew Luckiesh	205
NOTE AND COMMENT:	
Annual Meeting of the National Society	208
<i>Sight-Saving Class Exchange</i> Discontinued	208
Eye Conditions Among Indians in Selective Service	209
Inter-American Relations in Ophthalmology	209
I.E.S. Announces Publication of "Recommended Practice of Office Lighting"	211
Treatment of Lewisite Burns of the Eye	211
Pennsylvania's Sight Restoration Program	211
Warning: Remember Glaucoma	212
Pan-American Code for the Prevention of Blindness	213
Re Farsightedness and Visual Acuity	213

	PAGE
CURRENT ARTICLES OF INTEREST.....	214
BOOK REVIEWS by Adolph Posner, M.D., Anne M. Hahn, R.N., Pauline Brooks Williamson, Olga Sitchevska, M.D., and Arno E. Town, M.D.....	222
Briefer Comment.....	228
CURRENT PUBLICATIONS ON SIGHT CONSERVATION.....	229
CONTRIBUTORS TO THIS ISSUE.....	232

First Aid for Eye Injuries

Arno E. Town, M.D., F.A.C.S.

THE author describes efficient emergency handling of eye injuries, prior to attention by an ophthalmologist.

IN CONSIDERING the subject of first aid for eye injuries, it might be well to present a definition of first aid. Following is the definition provided by the *American Red Cross First-Aid Text-Book*:

“First aid is the immediate, temporary treatment given in case of accident or sudden illness before the services of a physician can be secured. In some cases this immediate action saves a life. In all cases, proper first-aid measures reduce suffering and place the patient in the physician’s hands in a better condition to receive treatment. The duty of the first aider ends where the physician’s begins, and there should be no clash of interest between the physician and the first aider.”

Foreign Body in the Eye

The most frequent injury to which the eyes may be subjected is due to foreign bodies. They may lodge in the skin, under the lids, or be imbedded in the outer tissues of the eyeball. They are almost always painful and should be removed as soon as possible. Often they are difficult to locate. First the lower lid should be pulled down, and a search made for a foreign body.

Most people do not know how or are awkward in trying to evert lids. Sometimes they may even do more harm than good, and it is better, whenever possible, to obtain the aid of a doctor. Lastly, the cornea should be examined under good light, using a flashlight in emergency. A foreign body which is located under the lids may be easily removed with a cotton applicator or clean tissue or edge of a clean cloth. However, if the foreign body is imbedded in the cornea, care must be exercised not to injure the delicate corneal

tissues. No attempt should be made by lay persons to remove a foreign body from the cornea. The patient should be referred as soon as possible to a doctor, who will make the procedure painless by instilling a local anesthetic, and then removing the foreign material with an instrument. After this procedure, the eye should always have a patch over it until the wound is healed.

"Black Eye"

Hemorrhage into the eyelids results from contused wounds. The appearance of the "shiner" or "black eye" as a result of blows about the eye is familiar to all. The blood and serum may travel across the bridge of the nose to produce swelling of the lids of the other eye. The prevention of extravasation of blood and serum into wounded tissues consists in the careful application of pressure and cold immediately after the injury. The devitalized tissues must not be iced or refrigerated too much, as gangrene and sloughing have been known to occur. Cold applications may be used for twenty-four to thirty-six hours, but not continually. Immediately after this initial period, when extravasation has ceased, absorption of the blood and débris is hastened by the application of warm compresses. A useful prescription for the purpose is as follows:

1. Anoint the skin around the eyes with lanolin.
2. Apply hot compresses of epsom salts (1 tablespoon to 1 pint of water) every ten minutes.
3. Apply cool compresses of sodium bicarbonate (1 teaspoon to 1 pint of water) every five minutes.
4. Eyewash with an eye-cup.

There is no point in trying to aspirate the blood as it is distributed through the soft tissues. Application of leeches, beefsteak, or other popular remedies is of little value and may be dangerous, as infection may be introduced.

Penetrating wounds of the eyeball are always serious and require immediate aid by an eye surgeon. The first-aid treatment consists in covering the eye with a sterile piece of gauze or an eye patch, which is gently fastened down with adhesive tape. The patient should recline during removal to the hospital or doctor.

Burns

Most thermal burns affect only the skin of the lids, singeing the lashes but not burning the cornea or conjunctiva, because of the rapidity of the reflex of the lids. If the effect is only on the skin, the condition will heal simply through the application of vaseline or boric ointment. If the burn is deeper or of second degree, there will usually be contraction because of the thinness of the skin of the lids. In third-degree burns, such as are seen after terrific flash burns of gasoline explosions in auto or aeroplane accidents, the explosion is so rapid that the victim has no time to close the lids; hence the conjunctiva and cornea are involved and the heat is so extreme that the skin and the lid margins may be lost, producing severe deformities.

First Aid in Chemical Eye Burns

Chemical burns, such as those due to lye, lime, acids, or various refrigerants, act similarly to those caused by heat. The chemical should be removed by neutralization if possible. Theoretically, an alkali burn—such as lye—should be washed out with a weak acid, such as boric acid ($\frac{1}{2}$ teaspoonful to a glass of water), or dilute vinegar ($\frac{1}{2}$ teaspoonful to a glass of water); and an acid burn should be washed out with a solution of baking soda. However, valuable time must not be lost in choosing the proper agent, but the corrosive should be removed by copious washing with water, if necessary, placing the eyes under a hydrant or immersing in water. After this first procedure, a doctor or a qualified nurse should look at the eyes for any remaining substance, everting the lids if necessary, as in the case of lye or lime burns, when a small particle tucked under the upper lid can do considerable damage to the cornea.

The immediate concern in the care of severe chemical burns is protection of the globe. Non-irritating oils, greases, and ointments should be used. Albolene and petrolatum, olive oil, lanolin, mixed or made up into bland ointments, are very useful. Protecting shields of metal or of the new cellulose compounds maintain the moisture of the cornea. The after-care will depend upon the indications, and should be under the guidance of an ophthalmologist.

Since serious permanent opacity often results from chemical burns, particular caution is urged in regard to domestic lye, building lime, refrigeration gases and fluids, battery acids, solvents, and paint and varnish removers. These and others should carry a special warning on the container stressing the danger to the eyes. The effect of the injury is always instantaneous and is serious if much of the caustic splashes in the eye. Often there is nothing effective that can be used to offset the action of the chemical even though the patient be seen immediately.

Ulceration of the cornea following minor trauma may be serious in its end-results of opacity and diminution of vision. The value of closure of the eye by a protective dressing for promotion of healing in the treatment of erosion of the cornea should not be forgotten. Local antiseptics are likely to be irritating to the eye and, in the concentrations in which they may be employed, are generally not very useful in destroying bacteria. It is fortunate that the tissues and secretions of the eye have a protective action in this respect, which accounts in most instances for the remarkable freedom from infection after trauma. Multiple foreign particles, as in powder burns, require several repeated efforts for complete removal.

Chemical Gas Burns

In chemical warfare certain gases will cause more damage to the eyes than to any other part of the body. These gases are phosgene, chlorine, lewisite, and mustard. In the present world conflict, if gas is used, it will probably be disseminated by aeroplane spray, and the civilian population, especially if unguarded by gas masks, will suffer.

In case of a gas attack, get out of the contaminated atmosphere or area as soon as possible. Gases tend to travel downwind. If gas has been released in your immediate vicinity by bomb explosion or spray, move upwind. If gas has been released upwind from you, move across the wind till you are out of the stream.

Most agents are heavier than air and tend to settle in hollows. Therefore, avoid low places or basements. The second story of a building is practically safe. Close doors and windows, stuffing cracks and chimneys; this will keep gas out for hours. If windows

are blown out by explosions, hang wet blankets over openings to keep gas from blowing in. The blankets should be fastened tight at the edges.

Lewisite gas in the eyes may cause blindness. Until neutralized or removed, lewisite continues to penetrate, burning through the skin into muscle or other body tissue. It differs in this respect from mustard, which never penetrates beneath the skin unless carried into a wound by contaminated shell or bomb fragments.

In contradistinction to the treatment of thermal burns of the eye, oils and ointments should never be instilled as they may absorb the gas and keep it pent up between the lids. The eyes must be treated immediately and repeatedly with irrigations of a 2 per cent solution of sodium bicarbonate or baking soda—one-half teaspoonful to a glass of water.

Tear gases are substances which produce severe but temporary eye irritation. Permanent damage rarely results. Many other chemical warfare agents also irritate the eyes but require greater concentrations than the tear gases. The tear gases, however, may cause panic in an uneducated population that does not understand their relative harmlessness and the rarity of serious after-effects.

Exposure to tear gas immediately produces spasm of the eyelids, with sensitiveness to light, inability to open the eyes, copious tearing, and some irritation to a freshly shaven face. If the solution itself gets into the eyes, there may be permanent damage.

The individual should be removed from the contaminated air and face the wind with the eyes open. If irritation is marked, the eyes may be irrigated with boric acid or a 2 per cent solution of sodium bicarbonate (baking soda). *The eyes must not be rubbed or bandaged.*

If a person has been gassed, the first-aid treatment consists in free irrigation of eyes and prompt removal of the patient to a hospital on a stretcher, as any undue exertion may prove fatal.

In conclusion, it is well to quote again from the opening paragraph, "First aid is the immediate, temporary treatment given in case of accident or sudden illness before the services of a physician can be secured," and to add the caution that whoever gives first aid should first wash hands with soap and water.

Twenty Years in Saving Sight*

Lewis H. Carris

THE author expresses the hope that the wartime psychology of generous spending will be carried over into peace time, so that funds will be available to ensure a complete conquest of blindness.

DR. JACKSON, may I salute you, as the first recipient of the Leslie Dana Medal, as the dean of ophthalmology whose vision goes far beyond what can be seen with the ophthalmoscope, and as a true and helpful friend?

In joining the distinguished group of men and women who have been awarded the Leslie Dana Medal, I am deeply conscious of the fact that they have all had a part in my attaining this great honor. It was my good fortune to enter the field of prevention of blindness at a time when the foundations were so soundly laid that it was possible to proceed by following rather closely the specifications of the founders—in particular, Louisa Lee Schuyler, Park Lewis, John M. Glenn, and Winifred and Edith Holt.

Nor can I overemphasize the debt which organized work for sight conservation and the prevention of blindness owes to the vision and wise judgment of the National Society's first managing director, Edward M. Van Cleve. Through his foresight, sound financial principles were adopted which have made it possible to maintain security even during years of depression.

Dr. Van Cleve began the pattern by carrying out the policies of one of the founders of the Society, Louisa Lee Schuyler. Miss Schuyler, who personally enlisted the interest of so many people in the movement, had firm belief in the possibility of securing support from the general public. Justification of this belief is seen in the

* Speech of acceptance of 1942 Leslie Dana Gold Medal, in St. Louis, Mo.

growth from 55 charter members in 1915, to the present enrollment of approximately 3,000 members and 18,000 contributors.

For its close advisers on technical aspects of prevention of blindness, the Society has been fortunate from the beginning in having leaders in ophthalmology, public health, education, social work, illuminating and safety engineering—among them Dr. Park Lewis, Dr. Edward Jackson, Dr. Ellice M. Alger, Dr. William Campbell Posey, Dr. George S. Derby, Preston S. Millar, Dr. Albert J. Chesley, Dr. William F. Snow, Dr. Conrad Berens, and many others. As president, William Fellowes Morgan, with the support of the Board of Directors, led the Society wisely for twenty-five years—a leadership now so ably given by Mason H. Bigelow.

I wish I could name the many capable associates I have had during my years as administrative head of the Society, but time does not permit. I shall, therefore, confine myself to specific mention of only one, who typifies the efficient, devoted service rendered by all throughout these years. Mrs. Winifred Hathaway, who came to the Society in 1916, has contributed more than can ever be measured to the cause of sight conservation and the prestige of the National Society. The Leslie Dana Medal was never more worthily bestowed than when conferred on her.

Beginnings of the Program

The chief aim of the organized prevention of blindness movement has been to translate into social action the scientific discoveries in ophthalmology and other fields which offer possibilities of saving sight. It was natural, therefore, that the outstanding campaign in the early years of the Society should have been directed toward the prevention of blindness from ophthalmia neonatorum, which had been clearly and unquestionably demonstrated as a preventable cause of blindness. Emphasis was also placed on prevention of eye injuries in industry, on establishment of sight-saving classes, and on prevention of blindness from trachoma. There is still need for concentration on these activities, partly because of the lag between discoveries that make preventive measures possible and the universal application of such procedures. Further scientific research, in some instances, and development of more effective methods of attack, in others, should hasten the solution of all of these problems.

Milestones in Scientific Development

Ophthalmia Neonatorum.—By 1890, Credé had clearly demonstrated how blindness from this cause could be prevented. However, to make this knowledge effective it was necessary to arouse public opinion to the support of mandatory legislation requiring the use of a prophylactic in the eyes of all newborn babies, as well as other control measures. The success of the educational program to enlist the co-operation of health authorities, physicians, midwives and parents can best be measured by the statistics from schools for the blind. In 1906–07, of the new pupils enrolled, 28.2 per cent were blind because of ophthalmia neonatorum. By 1921–22, this percentage had been reduced to 14.2; by 1941–42, to about 7 per cent. The campaign continues, but with new hope now that the sulfa drugs can be used effectively in treatment of gonorrheal or other infection in the mother and ophthalmia in the newborn child.

Trachoma.—A campaign for the reduction of blindness from trachoma was likewise among the early activities of the Society, which is proud to have had a share in the stimulation of research into the cause or causes of this disease, as well as in the planning of diagnostic and treatment services in affected areas. Until recently, progress in this field had been steady, but slow, since the treatment practised was painful and involved extended periods of hospitalization. However, with the discovery of the sulfa drugs, which have been used so successfully in the treatment of trachoma, there is new hope for the control of this ravaging eye disease.

No mention of the sulfa products would be complete without a tribute to Dr. Gerhard Domagk, who discovered the drug. In addition to its use in treatment of ophthalmia neonatorum and trachoma, it has been found effective in most types of serious eye infection, including those associated with eye injuries, as well as some of the infectious diseases and focal infections which in the past have taken such a large toll of eyes.

Venereal Diseases.—Achievements in other health, social and scientific fields have already helped to eliminate conditions which were formerly responsible for a considerable amount of blindness: Those of us whose primary concern is the preservation of sight have, therefore, long recognized the importance of such parallel

approach to the conservation of vision. A striking example is the venereal disease program.

Perhaps the greatest advance in this field which has been made in the past twenty years has been to bring the subject of syphilis and gonorrhea into open discussion as a public health, rather than a moral, problem. The campaign against venereal disease has been further accelerated by recent developments in medical science. Thus, the sulfa derivatives are proving effective agents in the control of gonorrhea. Organized efforts to develop the social machinery for insuring early diagnosis and continued medical care are likewise essential factors in reducing blindness from syphilis and gonorrhea.

Classes for the Partially Seeing.—The first special class for education of partially seeing children who have difficulty in using the educational material provided for the normally sighted was established as long ago as 1913. By 1922 the number of these classes had risen to 144, but this type of special education was available in only 44 cities, in 11 states. In 1942, there are 630 such classes in 222 cities, 31 states, the District of Columbia, and Hawaii. A number of states now have supervision of the education of partially seeing children in rural areas where there are not enough children to justify establishment of a sight-saving class.

The preparation of teachers for this work was started experimentally in 1922; since then yearly courses have been given in various educational centers throughout the country for teachers seeking elementary or advanced training in this field. Co-operation with colleges and universities in the establishment and conduct of these courses has been an outstanding feature of the Society's program.

An important by-product of the procedures developed to conserve the vision of school children with serious eye difficulties has been the interest aroused in the eye health of all children. A Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, co-operating with the National Society, has since 1925 published several editions of a bulletin, *Conserving the Sight of School Children*, which is now generally accepted in educational circles as the guide for a program of sight conservation in school systems.

A further development has been the growing recognition of need for more adequate preparation of all prospective teachers in sight conservation, and in recent years a number of teachers' colleges have integrated such instruction in their curricula. Also in co-operation with the Society, a number of institutions of higher learning have provided for their students routine vision testing and improved lighting in study rooms, libraries and dormitories.

The subject of school lighting has been given serious consideration since the publication in 1918 of the first edition of "American Recommended Practice of School Lighting." This valuable monograph has undergone periodic revision in order to incorporate developments in the science of illuminating engineering.

Eye Protection in Industry.—The last twenty years have seen continuous progress in the reduction of blindness from disease, but there is no evidence of a similar decrease in eye injuries. Standards of industrial equipment and safety measures have been developed and improved during this period, and their effectiveness has been strikingly demonstrated by the more progressive safety departments; for instance, in ten years not one worker of the 25,000 employed by The Pullman Company lost an eye. Unfortunately, industry as a whole has been slow to realize that investment in eye protection pays dividends both in eyes saved and in lowered cost of production.

The present war emergency may be an ill wind which will bring some good because of the compelling necessity now for maintaining manpower at the highest level of efficiency. Following the conference of leaders in safety work called at the request of the President in September, 1941, a large-scale program for reduction of accidents in general took its place as an essential feature of the war effort. As one of the co-operating agencies, the Society is particularly concerned with the specific measures needed for eye protection. The new edition of *Eye Hazards in Industry*, by the late Louis Resnick, published for the Society by Columbia University Press, is being extensively used by management and safety engineers as a source of basic information for such a program. I cannot let this occasion pass without paying tribute to Mr. Resnick, who developed the Society's industrial and safety program over a period of almost twenty years.

Medical Social Service.—The Massachusetts Eye and Ear Infirmary has the distinction of being one of the pioneers in the use of medical social service in eye clinics. Later, it collaborated with the National Society in the first course for training medical social workers in this field and in the first demonstration of what might be done by such a worker to conserve the vision of patients suffering from glaucoma. This project was undertaken in 1928 at the request of the late Dr. George S. Derby, who was ophthalmic surgeon at the Massachusetts Eye and Ear Infirmary, as well as a director of the National Society.

Out of that experiment grew a program of training and placing skilled medical social workers, not only in eye hospitals and clinics, but in community services throughout the country. Since 1931, 44 workers have been trained for placement in 14 states, the District of Columbia, Hawaii, Egypt, and Japan. At the present time such courses are conducted, as need arises, in Washington University, St. Louis, under the direction of ophthalmologists and leaders in medical social work. In addition, five intensive Institutes on Eye Health, each of four-weeks' duration, have been given at the Society's headquarters as a type of "in-service" training for persons who are already functioning in some capacity as prevention of blindness agents.

The need of general social workers, and those in special services, such as child welfare, for guidance in the solution of the eye problems of their clients, has been recognized, and educational material and counsel made available.

Nursing.—The first organized service of the Society to the nursing profession was inaugurated in 1927, and followed a study in New York City of the vision of preschool children, which resulted in development of a simple technique for screening out eye difficulties seeming to require ophthalmological care. Though the early work in the nursing field was confined to demonstrating this method of vision testing, the broader needs of the public health nurse for additional information on sight conservation and prevention of blindness were soon realized. At the present time, the program includes advisory service and the provision of educational material to nurses in all fields. Special emphasis has been placed on instruction and guidance for nurses in supervisory positions, since they are

strategically placed to promote sight conservation activities in general health programs. In co-operation with the National League of Nursing Education, efforts are under way to integrate more eye teaching in the basic nursing curricula.

Orthoptic Training.—As in the case of so many of our present procedures, the beginnings of which date back a century or more, the techniques of orthoptic training for the development of binocular vision and depth perception were given new impetus in the last two decades. Notable contributions have been made, particularly in the refining of instruments used in the training and in the techniques employed.

To the average person, orthoptic training is identified with the correction of crossed eyes. However, this treatment is necessary too in perfecting the binocular vision of individuals having even slight muscular imbalance. It is fortunate that the American Orthoptic Council established standards of instruction and procedure for the increasing number of technicians who work with these patients under ophthalmological supervision. The importance of good binocular vision and depth perception has been brought home to many a patriotic young man rejected from service in the air forces. Luckily, some of them are able, after orthoptic training, to meet the visual requirements of this branch of the Service.

Corneal Transplantation.—One of the most dramatic incidents of my professional career occurred several years ago, when Dr. Ramon Castroviejo brought to the Society's office three persons whose sight had been restored by corneal transplantation. It was the first time that I had seen clear windows placed in opaque corneas, permitting the light to enter and the persons to see. Immediately there came to my mind pictures of thousands of victims of corneal opacities from ophthalmia neonatorum, injuries, etc., many of whom might now have hope of seeing.

To be strictly accurate, we must admit that keratoplasty operations, in which a section of clear cornea from a fetus, cadaver or enucleated eye is inserted to replace opaque corneal tissue, date back a century or more. The history of successful operations, however, is much more recent. It was not until 1932 that reports of refinements of the grafting operation and of success with

it gave promise of the possibilities of restoration of sight by this method.

Reattachment of Retina.—Another striking instance of the way in which developments in scientific procedures have increased the possibilities of prevention of blindness is the operation for reattachment of the retina. This can best be illustrated by quoting from one of the standard ophthalmic textbooks. Back in 1924, Dr. Charles H. May spoke of the detached retina in these terms: "Prognosis is unfavorable. The detachment tends to enlarge and to become complete. Even after improvement or reattachment, relapses are the rule, and complete blindness is the usual end." He mentioned the operative treatment, but without any enthusiasm, thus: "Trephining of the sclera over the seat of the detachment, followed by aspiration of the subretinal fluid in this situation, has also been followed by an occasional cure."

Contrast this with what Dr. May has to say about the condition in the latest edition of his book, published in 1941: "Prognosis, formerly considered practically hopeless, has become much more favorable since the introduction of operations directed to the closure of holes and tears in the retina and to the production of an adhesive inflammation at the seat of the detachment. During the past few years one-half of the cases so treated have been reported as cured."

Other authorities are even more optimistic, and it seems to be the consensus of ophthalmologists that results are unsatisfactory only when operation is not undertaken at an early stage.

Agencies Co-operating in the Prevention Program

No blanket effort has been made by the National Society to establish branches or affiliated agencies for the prevention of blindness, as such. However, any interest shown in a specific state or locality has been fostered, and all possible help given. Excellent work is being done by a number of active state and local societies for the prevention of blindness, most of them established since 1922. During the same period, such official state agencies as departments of health, welfare, education and industry have been stimulated to develop activities in prevention of blindness or sight conservation. In general, the policy of the Society has been to offer assistance to

any organized social agency having either a direct or indirect responsibility for the saving of sight.

Within the past few years, review of the ophthalmological examination records of applicants for aid-to-the-needy-blind, under the Social Security Act, has revealed the need for medical or surgical treatment to restore or improve sight. As a result, programs of medical care to restore or conserve vision have been established in many states. Statistical analysis of these records, according to the classification of causes of blindness developed by the Committee on Statistics of the Blind,* has also provided basic data indicating the need for types of prevention services that can be undertaken by various state agencies. In a number of states, considerable progress has been made along these lines; there is, moreover, an encouraging tendency to avoid overlapping through co-ordination of the activities of the various state agencies concerned.

Another indication of the growing interest in well-organized programs suited to the particular needs of states is seen in the requests for consultation and field service, studies of surveys already made, and initiation of surveys to determine local needs.

Time permits only mention of the types of agencies with which the Society has co-operated: state departments of education, health and welfare, state commissions for the blind, state industrial commissions, etc., as well as similar federal agencies, including the recently organized National Committee for the Conservation of Manpower in War Industries.

The Shape of Things to Come

The broad principles of the prevention of blindness program have been pretty well established. Research is still needed in ocular medicine, but science is progressive and we have every reason to hope for the solution of problems in this field. Of more immediate concern to prevention workers is the need to make available throughout the country facilities and services now existing only in limited areas. Such expansion would require the expenditure of funds on a much larger scale than have heretofore been made available for this humanitarian purpose.

* Sponsored by the National Society for the Prevention of Blindness and the American Foundation for the Blind.

The war, however, is giving us new concepts as to the relative value of money and human rights. We have already learned to think in terms of billions of dollars for the production of materials for destruction. With only a slight transition in our thinking, may not this willingness to spend large sums for the destruction of life and resources be converted, in the post-war world, to the building of a constructive program for the benefit of mankind in which sight conservation would, of course, play an important part?

Conclusion

In contemplating the events of the past from the more objective view of one now free from responsibilities of administration, I can see more clearly than ever the pattern conceived by the founders of the National Society for the Prevention of Blindness. I can see the design colored by the minds of leaders in medicine, in public health, in education, in law, in industry, in social service, in nursing, in the sciences of lighting and optics; and, as the background of the tapestry, I can see the hearts and souls of the countless thousands of men and women who are daily working in the prevention of blindness movement, and of the public that generously supports it. World events have heightened the pattern, but the motif remains —SAVE SIGHT!

Nutritional Defects and the Eyes*

Benjamin Rones, M.D.

THE part played by vitamins and the glands in eye health.

THE importance of our eyes and good vision is obvious to everyone in his own private life. The over-all picture of the social and economic effects of the blind and visually handicapped populace, however, is not as thoroughly understood as it should be, in spite of the unflagging program of the National Society for the Prevention of Blindness. In a peace-time economy we have been able to salve the mass conscience by a dole to such organizations, and then assume that our duty is done. During a state of all-out warfare, however, the picture assumes an entirely different complexion. We are now in a state of mobilization where every adult man and woman will be needed either for military duty or for essential civilian activities in support of our armed forces. Consequently we are shocked to discover the loss of man-power resulting from conditions that are preventable to a great degree. In analyzing the first two million men examined by the Selective Service Boards, it was found that 900,000 of them were rejected for general military service. The rejections were due to dental defects in 20.9 per cent of the cases, and for defects of the eyes in 13.7 per cent, these two being the major causes of all physical disqualifications. It is therefore of considerable importance again to stress some of the factors that may impair the ocular efficiency of our man-power, and to do all that is possible to lower the rejection percentages from this cause.

The eye is not an isolated organ, but is an integral part of the human body, and consequently its state of health and nutrition is

* Prepared for joint publication in the *Bulletin* of the Kentucky Department of Public Welfare and in the REVIEW.

entirely dependent upon that of the body as a whole. However, there are certain general circumstances that produce their most manifest symptoms in the eye. Also, in various other systemic conditions the eye will be the first organ to show a disturbance. For the purpose of this paper the terms nutrition and metabolism can be regarded as synonymous. There are two sets of influences that regulate the general metabolism—the hormones elaborated by the endocrine glands and the vitamins. Disturbances of both of these will produce changes in the eyes.

Among the glands of internal secretion, the master role is played by the thyroid gland, which is the regulator or pace-maker of general metabolism. Excessive secretion by this gland results in Graves' disease, in which exophthalmos or protruding eyes is a characteristic symptom. Diminished secretion causes a state of sluggishness and myxedema, with a peculiar thickening of the skin, particularly noticeable around the eyes. Over-activity of the pituitary gland will produce giantism and acromegaly, while over-growth of this gland will press upon the optic nerves, causing blindness. The inter-relationship of all the glands of internal secretion is an intimate one, and even though no characteristic ocular lesions are produced by disturbed function of the adrenals or sexual glands, the resultant impaired function of the body as a whole will induce various ocular symptoms.

The utilization of food-stuffs by the body is often defective. In diabetes there is an inability properly to handle the body's carbohydrate intake, with various resultant general and ocular disturbances. Among the most frequent changes in the eyes are cataracts, iritis, retinitis and impairment of the ocular muscles. The metabolism of proteins may also be faulty, as occurs in gout, where the impaired purin metabolism often causes iritis. A considerable discussion has been going on as to the relationship between faulty calcium metabolism and the occurrence of myopia, conical cornea, cataract and various other conditions.

The importance of vitamins in our diet lies in the fact that in their absence the carbohydrates, fats, proteins, and minerals cannot be properly utilized. The diseases of vitamin deficiency, such as pellagra, beri-beri, scurvy, etc., have been known for a considerable time. Only recently, however, has it been recognized that sub-

clinical states of vitamin deficiency occur in wide areas of our populace. Such deficiencies lower the resistance of the individual to a host of secondary infections, and also in themselves cause a large variety of disturbances which are now beginning to be recognized and classified.

Vitamin A has been frequently termed the ophthalmic vitamin, because of its great importance in the metabolism of the eye. This vitamin is widely distributed and is found in abundant quantities in such green vegetables as spinach, lettuce, cabbage, and sprouts; also in the yellow group of carrots, tomatoes and sweet potatoes. The vitamin is present in vegetables in the form of carotene, and is converted into vitamin A by the liver. Consequently animal livers are a rich source of vitamin A, particularly such products as cod-liver oil. Milk and dairy products are also rich in vitamin A. Deficiency of this vitamin causes changes in the epithelium and in the glandular structures derived from it. Thus in the eye a characteristic and conspicuous manifestation of its lack is a diffuse and mild xerosis of the conjunctival and corneal epithelium, associated with the reduced production of tears. The eyes and lid margins are reddened and inflamed, and are quite sensitive to light; this condition being persistent in spite of all local medication. It has also been stated that in the eye clinics dealing with children of the poorer classes, hypovitaminosis A is found in a considerable percentage of the children with phlyctenular disease. Also vitamin A is a component of the visual purple of the retina, and is therefore intimately related to dark adaptation. This is of increasing importance in a world subjected to long night periods of black-out, and also to soldiers, sailors, and aviators who must engage in combat without the benefit of illumination. Although complete night-blindness is indicative of retinal disease, the mild forms of impaired dark adaptation can be greatly improved by augmenting the vitamin A intake.

Vitamin B₁ is present in unpolished rice, yeast, etc. A deficiency of this vitamin is frequently found in chronic alcoholics, for such individuals possess stomachs whose mucous membranes have undergone atrophic changes as a result of their indulgences, and consequently their food absorption is altered. In such individuals the impaired function and resultant atrophy of the optic nerves,

and also of the nerves of the oculomotor muscles, had previously been attributed to the toxic action of alcohol. It is now felt that these disturbances are due to the deficiency of B₁ and spectacular improvements have been reported where the vitamin has been given by injection, in some cases even where the use of the alcohol has continued.

Vitamin B₂, or riboflavin, has recently been the cause of considerable investigation, for it has been stated that a deficiency of this vitamin is the most wide-spread of all vitamin deficiencies. In this condition there occurs an acne rosacea of the face associated with a chronic keratoconjunctivitis, in which the outstanding signs are the excessive superficial vascularization of the cornea, with infiltrates and ulcers. Improvement is dramatic after treatment with riboflavin.

The function of vitamin C in ocular metabolism is unknown, although some investigators have attempted to relate it to the fragility of the retinal blood-vessels as a cause of hemorrhages in the retina.

Vitamin D regulates the calcium metabolism and a deficiency of it may lead to cataracts of the zonular type.

The importance of the general nutrition as related to the welfare of the eyes is an obvious one. The great problem is to detect the sub-clinical types of deficiencies in their earliest possible states, and supply the remedial agents. Most frequently a change and augmentation of the diet will be entirely sufficient, for the natural vitamins in food-stuffs are superior to those in capsule form. Certainly by such a simple preventive measure a great improvement in the ocular welfare of the nation can be expected.

Administrative Problems of Eye Clinics in Caring for Glaucoma Patients^{*}

Virginia Smith

FACTS and recommendations based on the experience of the clinics studied in connection with the Glaucoma Demonstration of the National Society for the Prevention of Blindness.

SEVERAL years ago the National Society for the Prevention of Blindness initiated a campaign to prevent blindness from glaucoma. At this time the importance of this problem cannot be too strongly emphasized, since the strain of the present world situation may well have a very marked effect on persons with glaucoma.

One part of the Society's campaign is a demonstration project under the direction of the Committee on Glaucoma which was recently appointed by the Society. The Committee is composed of ophthalmologists representing eye clinics in New York City and lay persons representing hospital administrations, the United Hospital Fund, the New York State Commission for the Blind, and the National Society for the Prevention of Blindness. The primary purpose of the Committee is to stimulate organization of special glaucoma clinics or special services for glaucoma patients in regular eye clinics. The Committee is interested in having only primary glaucoma cases taken care of in these special clinics and special services.

Of course, the special glaucoma clinic is the ideal way of treating glaucoma patients. However, many of the clinics joining in the demonstration project decided that, for the present, a special glaucoma service would be adequate. What is the difference between the special clinic and the special service? Perhaps this can best be explained by describing the set-up of one of the glaucoma clinics

^{*} Paper delivered before graduate students of ophthalmology at New York University College of Medicine, May 27, 1942.

in Brooklyn, and contrasting it with a glaucoma service. The clinic is held one day a week with a complete unit in charge, consisting of a director, medical assistants, a nurse and a clerical assistant. As soon as the diagnosis of glaucoma has been made in the general eye clinic of the hospital, the patients are referred to the glaucoma clinic, where they are carefully re-examined and treated by the glaucoma unit. Arrangements are made to return the patients periodically to the original examiner in the general eye clinic for review and for operation. The number of patients is limited to eight for each physician, but of course emergency cases are always admitted. Patients are examined and treated by the same doctor at each visit. Special glaucoma record forms are used and are placed in a separate file and are checked for completeness by the director of this clinic. An appointment book is kept and patients who fail to keep appointments are contacted by the clinic clerk. This clinic has no social worker assigned to it as yet, but arrangements are now being made for social service follow-through for these patients.

The special glaucoma service is offering to glaucoma patients in the regular eye clinic more complete service, the need for which is indicated by results of examinations as noted on a special record form. The results of a survey of records of patients attending three clinics in New York City and one in Boston for five years or longer indicated that the records of these patients were very incomplete and did not either contribute worthwhile research material or show that the cases had been properly cared for.

It is of interest to note some of the findings and to know the types of items which were incompletely filled in on the records. In the first clinic studied, approximately 1,500 glaucoma patients had been treated over a period of 13 years. Of this number of patients, records for only 58 cases were available and sufficiently complete to warrant analysis. Few of the patients remained under regular supervision for a period of years, and for those who did, rather meager diagnostic and progress notes were available. The date of onset of the glaucoma symptoms, date of first visit to the clinic, and history of the condition were incompletely recorded. The history item was the most incomplete and quite often consisted of one or two words, such as "pain" or "rainbows." Perhaps these

words would appear at the beginning of the record, or years after the patient's first visit. Many of the records failed to mention anything about the appearance of the eyes. Even tensions and visual acuities were not regularly recorded. Of these 58 cases, fields of vision had never been charted for 13 cases; in 28 cases the average number of times fields were charted per year was once, and in no case was the average more than twice. Actually, it would be difficult, when reading these case records, to be sure that they referred to glaucoma cases unless the patient was present for an examination. The records in the other two New York clinics studied, showed the same tendency to be incomplete.

Material available at the Boston clinic was more complete for certain items. At this clinic there are approximately 800 active glaucoma cases under care. A sample of 101 cases was selected for study. These cases had been coming to the clinic regularly from 5 to 21 years. The data on appearance of the eyes, date of first visit to the clinic, and date original diagnosis was made, were fairly complete. However, information about histories was very meager. Of the 101 cases, 54 had vision of 20/30 or better in the better eye at their first visit to the clinic, and 39 of these 54 still had 20/30 or better after five or more years of attending the clinic. Facts such as these are very significant when summarizing the effectiveness of a service. One outstanding point noted about these records was the fact that very complete progress notes were made at each visit of the patient to the clinic.

An interesting and important feature of this clinic in Boston is the glaucoma class which meets every two weeks during the months from October to June. All patients with glaucoma are invited to attend and bring any members of their families or friends. Lectures in simple language by staff members describe glaucoma and stress the necessity for regular, conscientious treatment and the importance of keeping clinic appointments. Attendance at these lectures is excellent. This seems to be a really successful method of informing the patients about their condition.

The survey of the old style records indicated the need for listing specific items on a form which could be followed during an examination, as apparently many ophthalmologists never established the habit of writing complete records in "story form."

The Society's Committee on Glaucoma realized that the first step to be taken was to work out a simple record form for glaucoma patients. A form was planned and approved by the Committee which would save the time of the examiner and insure completeness of the record. The section on appearance of the eye is set up so that each part of the eye can be checked according to its appearance on a specific date. There are charts for tension and vision and space for listing type of treatment all on the same page so that any relationship among these items can be noted at a glance. The completed form presents a summary of a case which is quickly and easily read. No attempt is made to regiment the doctors by insisting on the use of a standardized form; but it is being used by several clinics at the present time. It is hoped by the use of these forms not only to collect data that will indicate the results obtained with improved services, but also to influence the quality of the medical service by—

- a. Proving the value of a good history.
- b. Suggesting better service to the patient.
- c. Implying a thorough examination.
- d. Giving better training to younger men who have to acquire the habit and knowledge of recording the essentials.
- e. Collecting data very necessary for a survey of the glaucoma situation (percentage of failures, successes and arrested cases; number of glaucoma cases, their tendency to increase or decrease; results of operations versus outcome of conservative treatment).

There is another problem which the Committee recognized as having a very important place in the improvement of services. That is, the setting up of a card index of all glaucoma patients attending each clinic. Since many of the hospitals do not keep diagnostic files, no one has figures on the number of glaucoma patients under care in New York City. Of course, the extent of the problem would be indicated by the size of this figure. Not only is this index important in order to know the extent of the problem, but also to trace patients from one clinic to another. It is not fair to the doctors in charge of clinics, particularly in handling glaucoma, to have a patient come in irregularly for several weeks or months and then go to some other clinic for a time, and finally

return to the original clinic. This travelling from one clinic to another causes a great deal of duplicate work, as each new clinic the patient visits has to make investigations which have already been made in the previous clinic.

The Committee, as part of its demonstration, plans eventually to organize a central index containing names of all glaucoma patients under care at clinics in New York City. Hence, when a patient goes from one clinic to another, it will be possible to exchange copies of the records so that each clinic caring for a particular case will have a complete record for him.

After the record form was accepted and distributed to the hospitals participating in the demonstration project, visits were made to the clinics to ascertain progress. It was found that, of nine clinics visited, eight have already organized their card files of names of glaucoma patients, and in six of the clinics a special glaucoma form is being used. Gradually the doctors are transferring material from the old clinic record forms to the new special form.

All of the clinics visited are following routinely procedures which include field tests, tonometry, and visual acuities. However, not all the clinics are using social service. This is a very important part in the handling of a glaucoma case. Every case of glaucoma, and particularly those recently diagnosed, should be referred to the social worker assigned to the eye clinic. Most of the glaucoma patients are not informed as to the meaning of their illness, nor do they know the most elementary rules of hygiene pertaining directly to their condition. Such simple information as what constitutes a wholesome diet; the importance of avoiding a sedentary life, dark rooms, and excitement; the beneficial effect of promoting cheerfulness even in most modest surroundings, should be given to the patients in leaflet form for them to take home.

Certainly physicians do not have time to talk with each patient in detail about his condition and the effects various outside influences may have on it. This is a very definite part of the social worker's job, which can be handled when a social history is being compiled for the patient. During such contacts the social worker is able to gain the confidence of the patient, and is often able to get facts about the case which will be helpful and valuable to the doctor in prescribing treatment.

There are many difficulties encountered when attempting to inform a patient about his eye condition. For example, in New York City there is a large percentage of foreign-born patients who have difficulty understanding English. In fact, one New York eye clinic reported that approximately 75 per cent of their patients have this difficulty. Certainly, for these patients, it is much simpler to have the social worker speak to the interpreter who, in turn, interprets the meaning of the instructions to the patient.

In visiting the eye clinics, it was found that one clinic chief did not think it any more ethical for a hospital to follow-up glaucoma patients than for a private doctor to go after his private patients. In the first place, the type of patient visiting the eye clinic comes from an entirely different group than those who go to a private office. Hence, they need a different approach.

In the second place, certain ophthalmologists now feel that it is ethical to follow-up their private patients who have glaucoma; and one of the western medical societies has gone so far as to prepare a form letter to be used in private practice by its members for reminding glaucoma patients about their appointments.

Another interesting procedure noted during the clinic visits was the fact that some of the clinics arrange to have their glaucoma patients always examined and treated by the same doctor. This seems to be a very desirable procedure.

In most of the clinics visited the patients are being told to use the drops, but they are not being practically trained in how to use the drops and salve. Since putting drops in the eye correctly requires a certain technique, it seems that it would be desirable to have a nurse or a volunteer ask the patient or relative or friend who instills the drops to demonstrate exactly how this is done. In this way the proper technique can be taught to these people. Certainly in order to prevent blindness from glaucoma it is important to have the drops go in the eye and not just on the cheek.

In connection with organizing some special service for the glaucoma patients, several of the clinic chiefs have appointed one of their attending doctors to take responsibility for checking the glaucoma records periodically for completeness. Since it is quite easy to forget to write down significant facts about the case, this

is an essential part of the service. No matter how fine a record form is, it is useless unless it is completely written up.

One most disturbing observation made during the visits was the lack of personnel in the clinics. It is important to have trained medical secretaries, social workers, perimetrists and clerical assistants, not only to improve service to glaucoma patients, but to improve all clinic services.

The National Society for the Prevention of Blindness, as a part of its glaucoma project, is planning a short course for volunteer workers who are already assisting in eye services to train them to act as medical secretaries and perimetrists in special glaucoma services.

To summarize, the following suggestions are offered for improving glaucoma services which have resulted from observations of conditions in these clinics:

1. Refer every glaucoma patient to your social worker. If the social worker feels that she has the confidence and recognition of the doctor, she will co-operate in every way possible. She will be helpful in the clinic in many ways.
2. Use clerical assistants advantageously. Frequently there is an intelligent clerk in the clinic who is eager to learn. Refer this person to simple textbooks and gradually she will be able to write up notes on the records from dictation.
3. Write complete records. Here must be stressed the importance of noting facts about each eye separately. For example, when someone has glaucoma in one eye, it is important to note the condition of the other eye too, even though it is normal. Frequently, on looking over a record, it is found that one eye is affected with glaucoma for a period of time, and there is no information about the other eye; then suddenly the second eye is reported as glaucomatous. Immediately it raises a question about the condition of this eye previous to the onset of glaucoma.

It is important, too, to have the visual acuity noted for each eye with and without correction and to have each visit the patient makes to clinic carefully dated on the record.

If records are complete, valuable research material as well as evidence of the effect of proper treatment for glaucoma is available.

4. Suggest changes in organization of the clinic to the clinic chief. Of course, these should always be within reason and have a sound basis. In many clinics the confusion and long periods of waiting for patients could be remedied if clinic personnel put their heads together and worked out an efficient appointment system. Such confusion has a most disturbing result on glaucoma patients and should be avoided.

There are a great many people in this country who must get all their medical attention in clinics. It is, therefore, important to provide the best of clinic facilities, and it is imperative for every doctor to attend the clinics which he is serving regularly and to give as much time as possible.

Care of the Eyes in Middle Age^{*}

Willis S. Knighton, M.D., F.A.C.S.

A REASSURING word to the middle-aged on maintaining healthy vision.

IF YOU have reached the age of 40 with perfectly healthy eyes, the chances of keeping them that way are all in your favor. You may use them as much as you ever did, with clear vision, without discomfort, and without any fear of doing them harm. To be sure, some changes do occur with age, but these will not interfere if your eyes are healthy. Of course, it must be assumed that your eyes have been examined and pronounced healthy by an eye physician. That is the first step in the care of the eyes at any age.

What changes then can you expect in middle age? What will you have to do to be able to continue all of your activities with perfect eye comfort? Will you have to spare your eyes?

Let us answer the last question first, by saying emphatically that healthy eyes do not have to be spared in any way. Eyes were intended to be used all the time during the waking hours, and if you are having any difficulty in seeing clearly in the distance or in reading, something is wrong. Perhaps you are already wearing glasses to make things clear. That is entirely consistent with healthy eyes. It means only that your eyes are not perfectly focussed. Glasses simply focus things clearly and relieve the strain if there is one. But, whether you wear glasses or not, you are going to notice a change in your reading comfort.

At first you may simply be more tired than usual. Later, however, the print will be slightly blurred and you will have to hold the book farther away. (When that time comes, please spare the eye physician and don't tell him that 'your arms aren't long enough.

^{*} Radio address, WNYC, August 7, 1942.

He hears that story almost every time someone comes in with reading trouble.) The remedy is very simple. Reading glasses must be prescribed to take the place of the focussing power of the eye that is getting weaker with age. If you wore distance glasses before, you will now have to have two pairs, one for distance and one for close work. Some people try to fight against this sign of age, and they go through all kinds of discomfort before they are willing to admit that they need reading glasses. It won't do any good. If your eyes can't focus on the book as clearly and as comfortably as they used to, the only sensible thing to do is to get your reading glasses. Exercises won't help. Neither will waiting and "giving the eyes a rest." Don't worry about your eyes becoming dependent upon reading glasses. Of course they will, if you need them. The eye physician can determine this, and he will see that you get glasses to fit your eyes and your particular kind of close work.

If you are wearing glasses for the distance, why not combine them with the new reading glasses in the form of a bifocal? Already I can see some of you holding up your hands in horror at the mention of the word "bifocal." Yes, I've heard all the arguments against them, how bifocals give away your age, how terrible they look, how they made someone fall downstairs, and so on. As a matter of fact, I wear bifocals myself, because they are more convenient and cheaper than two pairs, and I haven't fallen down yet. It really doesn't matter whether you get bifocals or not, so long as your reading is made comfortable.

Close work, under the proper conditions, doesn't hurt the eyes and it shouldn't even tire you. And the nature of the work doesn't make any real difference to your eyes. Whether you are reading a novel or whether you are adding up a lot of figures, your eyes work just as hard at one job as at the other. Adding up figures is a lot more tiring mentally, but it doesn't make the eyes work any harder. Don't think you have to spare your eyes if they have been taken care of properly.

Illumination is another very important factor in comfortable reading. Most people are content to read with a light that is much too weak and sometimes that is the only light in the room. Both these practices are wrong. If you use a bridge lamp for reading, put in a 100-watt bulb instead of that old 40 or 60, and see what a dif-

ference it makes. Even then you might not have enough good light for fine sewing. Incidentally, reading in the subway, now that the lights have been dimmed, is hardly to be recommended. Even healthy eyes feel the strain.

Outdoor illumination in the shade is many times brighter than a 200-watt bulb and yet it never bothers healthy eyes. One reason is that it is diffuse and not concentrated. That brings up the other point—the habit of reading with only one light in the room, spotlight illumination. That may be all right for a short time, while reading in bed, where you don't want to disturb any one else, but over a long period of time it is very tiring. One part of the eye is trying to adapt itself to the lighted book while the rest is trying to adjust to the surrounding darkness. General room illumination is best for comfort, with extra light for reading. And by the way, reading in bed will not hurt your eyes if you are in a comfortable position and obey the ordinary rules for reading elsewhere.

As we get older the lens that lies inside the eye often gets denser so that it doesn't let in as much light as a younger eye. That makes another reason for added illumination for reading and I have often advised older patients to read with a 150- or 200-watt bulb, always with general room illumination.

Will the movies do any harm to healthy eyes? Not at all. There may be a certain amount of eye fatigue after holding the eyes fixed on the bright screen through a double feature, and certainly the neck muscles must get pretty tired after all that time, and the lungs must cry for a breath of fresh air, and the seats begin to feel pretty hard, but it must be admitted that no actual physical damage is done.

What about tinted glasses or dark glasses? The answer depends entirely on the reason for wearing them. If you have an eye disease, the doctor may prescribe them to be worn until the eye clears up. Or he may advise you to wear them when you go to the beach, where there is an unusual amount of sunlight. But don't expect any medical approval if you want to wear them just because the movie stars do. As a general rule, dark glasses—if they are going to do any real good—should be too dark for comfort when you are not in bright sunlight. Healthy eyes should not be bothered by the sunlight in New York City.

At the very outset we said that if your eyes had been carefully examined and pronounced healthy, you had every reason to expect them to remain so. Of course, if you just assumed that your eyes were all right because you had never had any trouble with them, you owe it to yourself to turn that assumption into a certainty by going to an eye physician. If he finds nothing wrong, you will certainly feel better. For he is going to dilate your pupil and look in the back of the eye at the optic nerve and the blood vessels of the retina. That is the only place in the body where the blood vessels are exposed to view. And very often that kind of examination gives the first evidence of diabetes or arteriosclerosis or other general disease. But, in addition to that, the eye physician is going to look for two specific eye diseases, cataract and glaucoma.

Both of these end in blindness unless prevented from developing. But where cataract can be "cured," glaucoma cannot. Most people have such a confused idea about these two diseases that it seems worth while to spend a few minutes discussing them.

A cataract is a clouding of the lens that lies inside the eye. It is not a film on the front of the eye as so many imagine. Usually it can't even be noticed from the outside, but must be examined by a special instrument that sees inside the eye. You will remember that this lens in the eye gets denser as we get older and sometimes requires a stronger light for reading. That is not the same thing as a cataract, so you need not worry just because you like a strong reading light. If you have a cataract, the lens becomes actually clouded so that you can't see clearly, even with a strong light or with new glasses. The cataract is called mature or "ripe" when you can't see anything but a bright light, but long before that the vision may be so bad that you can't read or recognize people. The eye physician can detect an early cataract long before you notice any change in your vision. So when he tells you that your eyes are healthy, you can be sure that he saw no signs of cataract.

The only known definite "cure" for a cataract is an operation. It is not dangerous, but it requires skill. When the cataract is removed you must wear special glasses that take the place of the eye lens and you will then be able to see as well as you did before the cataract appeared. Years ago it was felt necessary to wait until the cataract was "ripe" before operating, but today we know that

the operation is just as successful when it is performed earlier. In this way the patient is spared many months or years of being almost blind while the cataract is ripening. If your vision is bad because of cataracts, you should have an operation as soon as possible. But if you decide to wait, no particular harm will be done—the cataract can be removed at any time—but you will not see better until it is removed.

Glaucoma is entirely different. Generally speaking, it is a hardening of the eyeball that eventually causes blindness. Pressure inside the eye kills the optic nerve and the delicate nerves of the retina. Sometimes the eye is red and painful and the vision is made worse rapidly and you know that you need immediate attention. But the more common form of glaucoma is not painful, the eye is not red, and the vision is reduced so slowly that you may not notice anything wrong until it is too late. For glaucoma cannot be cured, that is, the lost vision can never be restored. Early treatment, however, can relieve the pressure. The best that the eye physician can do is to arrest the disease so that things won't get any worse. Consequently the earlier treatment is started, the better.

If you know you have glaucoma, follow these precautions:

1. Keep calm. Avoid war news and discussions.
2. Avoid stimulating food and drink.
3. Avoid dim-outs. Keep your room as well lighted as possible.
4. Avoid constipation. Keep in good general health.
5. Avoid tight-fitting collars or any constriction around the neck.
6. Consult your eye physician regularly and do exactly as he says.

If you just think you have glaucoma, consult an eye physician immediately and find out. Do it anyway if you have any of the following symptoms:

1. If the vision is blurred or "smoky."
2. If close work bothers you in spite of frequent changes of glasses.
3. If there are halos or rainbows around lights, especially at night.
4. If there is eye pain after movies, in dim lights or after emotional upsets.

It would be unfortunate if you were to have glaucoma, but you would have a better chance of saving your eyes today when we know more about the treatment and care of it. And you would be still more fortunate if you were wise enough to consult your eye physician at the first suspicious symptoms. Then you would have the best chance of keeping good vision the rest of your life.

If your eyes are healthy, enjoy them all your life. Use them all you want. They were made to serve you and you can't hurt them if you use them properly.

The Ophthalmologist and the Partially Seeing Child

Winifred Hathaway

A DISCUSSION of the mutual responsibility of the ophthalmologist and the school system for providing the partially seeing child with special educational opportunities.

FOLLOWING an informal talk on sight-saving classes a noted ophthalmologist remarked, "I am very glad I was present today. I have had many children under my care who needed just the type of educational opportunities special classes for the partially seeing have to offer, but I didn't know that any such help was available." Is his experience unique or are there other ophthalmologists who do not know what educational procedures to recommend for the child with seriously defective vision? Is it not possible that occasionally a child is kept out of school because the ophthalmologist is unaware of the educational opportunities that special classes for the partially seeing have to offer?

Proportion of Children Requiring Sight-Saving Class Facilities

Even an ophthalmologist with a large private practice and a crowded clinical service will not find a great number of children with such seriously defective vision that, after treatment or optical aids have been given, they cannot advantageously use the educational media provided for the normally seeing. Only about one child in 500 of the school population needs special educational procedures and equipment because of eye difficulties, but that one needs it badly.

Co-operation Between the Ophthalmologist and the School System

It is to the school system that the ophthalmologist must look for providing necessary educational opportunities; it is to the ophthalmologist that the school system must look for recommendation of pupils. Indeed, many classes would never have been established if ophthalmologists had not called the attention of the educational authorities in their communities to this special need.

What Children Belong in these Special Classes?

Since the ophthalmologist makes the recommendation concerning educational placement of the partially seeing child, he must be familiar with the requirements for entrance into these classes. For guidance in making recommendations, he may consider the following groups:

1. Children having a visual acuity between 20/70 and 20/200 in the better eye, after refraction.*
2. Children with progressive eye difficulties.
3. Children suffering from non-communicable diseases of the eye or diseases of the body that seriously affect vision.

During the past decade much attention has been given to the effect of eye difficulties on educational procedures and to the psychological reactions of physical disabilities; therefore it is well to consider the advisability of placing other groups of children in one of these classes as a temporary measure:

1. Children who have had eye operations (particularly enucleation) as a result of which re-adaptation in eye use, or psychological readjustment, is necessary.
2. Children who are suffering from muscle anomalies requiring re-education of the deviating eye, in cases in which an untoward psychological reaction is manifested.
3. Children recovering from diseases such as measles, who may need special eye care until they are able to assume the full responsibility of regular grade work.

Perhaps the best summary is, "Any child who, in the opinion of the ophthalmologist, needs the special care, equipment and educa-

* Children with a visual acuity of less than 20/200 are usually considered educationally blind, hence are candidates for schools or classes established for the education of the blind.

tional media offered by sight-saving classes, should be recommended for placement in them." Only children of normal mentality are eligible for such classes; determining the mental status is not the responsibility of the ophthalmologist but of the psychiatrist or psychologist.

The Responsibility of the School System for Co-operation

When the ophthalmologist has made his recommendation in regard to placement, it becomes the duty of the school system to make the best possible provision for the education of the partially seeing child. Such provision may be placement in a special class for such groups; or, in communities too small to warrant the establishment of such a class, arrangement may or may not be made through the state department of education for placement in the nearest class of this nature. A county class may be established or one in a consolidated school. Failing these possibilities, the necessary educational material may be supplied to the rural school by a qualified supervisor and assistance be given to the teacher in order that she may understand how to safeguard the child's sight and to make the best use of such material.

Ophthalmological Co-operation with Parents

Parents of the partially seeing child are often concerned about placing him in a special class; unfortunately, in many communities the term, "special class," carries a suggestion that it is for mentally subnormal children. Often it becomes the function of the ophthalmologist to reassure parents by giving them the following information regarding the principles on which classes for the partially seeing are founded:

They are established in public school systems as part of the regular school activities.

The children are not segregated from their normally seeing companions; they do all their close eye work in a specially equipped classroom and join their normally seeing companions for activities not requiring close use of the eyes.

Their teacher has been trained, through a series of lectures on anatomy, physiology and hygiene of the eye, refractive errors and

common eye diseases, together with clinical observation, to enable her to understand the eye difficulty of each child and to adapt educational procedures to the particular needs of the individual.

The children are given the advantages of material printed in type suited to their needs: large, clear maps with no unnecessary detail; typewriters in large type on which they are taught the touch system so as to reduce close eye use; hygienic seats and desks that lift to an angle in order to provide the desired eye focus and to promote good posture.

Adequate, well-controlled, well-distributed and well-directed illumination without glare is a requisite of every up-to-date class for the partially seeing; the regular school curriculum is followed; hence, if the child's eye condition improves sufficiently for him to return to the regular grade, or if he wishes to enter high school or college he is as well prepared as those without eye difficulties.

The child's general health is given great consideration.

Vocational guidance and social adjustment are emphasized and in many instances vocational training is made available.

The Ophthalmologist and the Special Class Teacher

The ophthalmologist who assumes his full responsibility in recommending partially seeing children for placement co-operates with the teacher of the class by giving her as complete a picture as possible of the eye difficulty in order that she may adapt educational procedures to the child's needs. He, in turn, has the right to expect equal co-operation on the part of the school authorities in carrying out his recommendations for eye use and eye care.

Bibliography

- "Sight-Saving Classes in School Systems," rev. 1931. Publication No. 4, National Society for the Prevention of Blindness, 1790 Broadway, New York, N. Y.
- "Sight-Saving Classes: Organization and Administration," Winifred Hathaway and Hazel C. McIntire, rev. 1937. Publication No. 30, *ibid.*
- "The Sight-Saving Class as a Mental Hygiene Measure," Catharine A. Flanigan. Publication No. 153, *ibid.*
- "The Doctor and Sight Conservation," Park Lewis, M.D. Publication No. 272, *ibid.*

- "Vocational Guidance for Sight-Saving Classes," Marie C. Kniewel. Publication No. 284, *ibid*.
- "Emotional Factors in Education of the Visually Handicapped," Eleanor L. Hearon. Publication No. 286, *ibid*.
- "The Ophthalmologist and the Sight-Saving Class Teacher in Conservation of Vision," Edmond L. Cooper, M.D. Publication No. 324, *ibid*.
- "The Visually Handicapped Child in the Rural Community," Marcella S. Cohen. Reprinted from the *Journal of Exceptional Children*, April, 1940. Publication No. 335, *ibid*.
- "American Recommended Practice of School Lighting," Illuminating Engineering Society and the American Institute of Architects, 1938. 60 p. Illuminating Engineering Society, 51 Madison Avenue, New York, N. Y.
- "Room Design and Equipment Requirements for Sight-Saving Classes," Winifred Hathaway. Reprinted from *The American School and University*, rev. 1938. Publication No. D86, National Society for the Prevention of Blindness.
- "Sight-Saving Classes Light the Way," Hazel C. McIntire. Reprinted from *Ohio Parent-Teacher*, January, 1938. Publication No. D116, *ibid*.

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request.

The Industrial Worker—His Eyes

The occupational hazards to the industrial worker are many, but of all of them those which affect his eyes are probably the most far-reaching in their effect upon his life, happiness and livelihood. In spite of this fact many a worker exposes himself to injury and eye infection, day after day. He makes no attempt to protect himself either by the use of mechanical devices or by the intelligent use of safe conduct and medical care. With the steady increase in the number of men and women entering industry the need for better knowledge and better application of this knowledge about the care of the eyes grows daily. This need is recognized by Dr. Leverett D. Bristol, chairman of the Council on Industrial Health of the American Medical Association, who, in a recent report, stresses the immediate necessity for the education of the worker

with reference to his own health as the need of greatest importance in an industrial health program.

Each worker should himself know how to protect his eyes by recognizing the signs of eye strain and defects, and knowing the particular eye hazards connected with his job. Many industrial firms now provide a pre-employment eye examination followed by periodic tests, but in spite of this it is observed that a worker will often develop signs of eye irritation which he does little to correct or which he neglects entirely until the condition becomes chronic, resulting in not only loss of work hours but loss of wages as well.

In the past years eye protection by management has been directed mostly toward the prevention of injury through accident, dust or chemicals directly connected with the industrial process. As a result, such improved and perfected devices as

goggles, shields, face masks, helmets and hoods have been provided. Exhaust systems and better ventilation; intelligent revision of certain processes, such as the installation of the automatic machines, has helped to cut down the number of accidents and the incidence of disease due to dust or fumes. However, there is a long list of other diseases not connected directly with the industrial process, but still growing out of conditions which are part of industry, such as poor lighting or unhealthful working conditions and communicable diseases spread through unsanitary conditions and practices in work places. In the last two types of disease and eye afflictions the causes are less dramatic and the illness often slow in developing, but the effect is just as costly to the worker—lost eye-sight or incapacity to work and earn a living. These disease hazards have been neglected by management and worker alike. One way the employee can help protect himself is by early recognition of changes from the normal—know the signs of eye difficulties and then do something about them. Go to the clinic or doctor. Don't wait!

A young mechanic recently developed a bad sty on his right eye. A month previously he had had one on the lid of his left eye. When asked why he didn't do something about it, he said, "I don't have time. I work on the night shift and sleep in the daytime when the doctor has his office hours." He needed medical

attention, treatment and advice, not only to cure the present ailment but to find the cause, if possible, and thus prevent further spread of infection. There is no doubt that a worker who is on night shift finds it difficult or inconvenient to go to the oculist or clinic on his off hours, but he should remember that it is going to be much more inconvenient and expensive if the condition is not corrected.

These signs of eye-strain and irritation, such as styes, are often slight, but even the slight indication of change from the ordinary should be cared for immediately. The cause may be one of many; some connected with the work and working conditions and others growing out of living conditions. In the latter group such things as loss of sleep, lack of certain essential foods, a sinus infection, a general run-down condition, or actual changes in the visual acuity of the eyes may be the contributing or direct cause. Where the cause is associated with the job being done, it might be due to poor or glaring lighting, poor plant hygiene, especially as related to the toilet or wash-room, or lack of hygiene of the employees themselves.

The first evidence of eye difficulties may be itching of the lids, styes, redness of the lids or eye, burning of the eyeball, tearing and pus in the corner of the eye in the morning, eyelids stuck together after sleep, or light sensitiveness. Headaches, dizziness, and even stomach upsets may be traced to eye-strain.

Also, extreme and unusual fatigue at the end of the working day may indicate that the eyes are not functioning properly and need attention. These are some of the first signs and warnings and may merely indicate a temporary irregularity, but they are also the first stages of many of the more serious eye diseases, such as trachoma, and should not be neglected.

Taking up first those general ways in which the worker can help in protecting himself from disease, one of the best methods is to get sufficient rest and good food. Sleep and rest are necessary to everyone and the worker who is on an intensive schedule needs plenty. Lack of sleep has been found to lead to inaccuracy and irritability on the job, and lack of rest over a prolonged period makes an individual more prone to mistakes and accidents, and an easy victim to infection. In recent months the newspapers and magazines have carried many articles concerning advice on foods. The good diet is the one which includes plenty of milk and dairy products, whole grain cereal and fresh vegetables, both raw and cooked. The type of food which has been found to be particularly beneficial to the eyes includes carrots, dairy products, butter especially, liver and all others containing vitamin A. It has been observed that many workmen eat sandwiches of white bread, whereas some of the darker, coarser breads contain more vitamins and calories and are just as

cheap and healthier than the white variety. It must be recognized that a well-balanced diet is essential and should include all kinds of food, so that the lunch box should carry raw vegetables, such as greens and tomatoes and carrots, as well as sandwiches.

The elimination of all chronic infections of the nose, ears, sinus and teeth has been found to clear up eye conditions which have frequently caused near-blindness. The presence of such infections, or, for that matter, any infection within the body, is a constant strain and drain on the resources of the entire system. A sinus infection particularly will affect the eye-sight and often makes a person think his eyes have suddenly become much poorer than formerly. This may not be the case at all, and as soon as the sinus is cured, the eye-sight may again become normal.

Fortunately, the four most common types of eye defects are correctable by the use of glasses. They are:

1. Astigmatism—Irregularity of some part of the eye
2. Myopia—Near-sightedness
3. Hyperopia—Far-sightedness
4. Presbyopia—The reduced elasticity of the eye muscles, usually beginning anywhere between the ages of 40 and 50

It is possible for a person to have any one of the above-mentioned defects in vision and still be unaware of it until the constant use of the eyes at a

machine or the poor light on his work produces headaches, stomach upsets, blurring, fatigue and just plain tired eyes. Corrective glasses should give relief and the older workman should not hesitate to have his eyes examined and procure properly prescribed and fitted glasses. And when he gets them it is important that he wear them.

Most of the larger industrial firms have found it good economy in time to provide effective lighting for the workshop. However, with the many hastily converted plants now in use, the light may not be as well directed as it should be upon the work. The constant motion and jiggling of machinery, or parts of it, for instance, may be the cause of eye-strain. Therefore, definite standards for efficient lighting in industrial plants have been set up. Louis Resnick, in his book, *Eye Hazards in Industry*, says: "Any lighting method, natural or artificial, must take into account three factors: sufficiency, continuity, and diffusion. There must be, first of all, adequate window space. In general there are three ways in which to provide window space—by side windows, by skylights and glass roof, and by saw-toothed roof construction. In most plants these three means are combined, according to local conditions, to secure the maximum amount of daylight." He continues: "Even in the plant which is constructed to use daylight to the fullest extent for all the time it is available during work-

ing hours there are two conditions which make necessary the installation of an adequate system of artificial illumination:

"1. Short period of daylight during the winter months.

"2. The cloudy and stormy days which decrease the natural light so that the work cannot be carried on without eye-strain."

Today, most plants are used twenty-four hours a day, which naturally makes efficient artificial light an absolute necessity. The other factor which may cause uncomfortable conditions for the worker is glare. This often is caused by reflection from polished surfaces, windows, or even the piece of work being inspected or polished. Shades should be provided and lights shifted. Poor lighting will exaggerate and excite all eyes with a refractive error (that is, eyes that can be remedied by wearing glasses). Conjunctivitis may be caused by using eyes steadily under poor lighting conditions. The light should be well diffused and not spotty; and eye comfort is a good standard for good lighting.

The other condition which is hazardous to the worker is insanitary toilets and wash-rooms. These are often responsible for the spread of disease within a plant. In most places the old roller-towel has been replaced by paper towels. Plenty of them, plus soap and hot water, should be provided twenty-four hours a day. The wash-room should be clean and the worker should help

keep it that way. The importance of a sufficient number of toilets for the number employed cannot be over-emphasized. Many workers do not realize that door-knobs, flush valves and water faucet handles spread infectious disease. The workman who is careless in the toilet may be exposing not only himself to infection, but others as well. Workers should demand clean wash-rooms and plenty of them. The incidence of venereal diseases in industrial plants has been found to vary from one to ten per cent. They are highly contagious. The way to help prevent their spread is by practising decent personal habits, using paper towels and soap and water.

In closing, a few definite suggestions may help you protect yourself from eye disease or difficulties:

Do not rub your eyes with a dirty towel, handkerchief, sleeve, or hand.

When you are hot and sticky, germs, dust and oily substances will readily stick to the eyelids or can be rubbed into the eye itself. This very stickiness creates excellent media for the development of germs.

Do get expert first aid for eyes.

Do not let the inexperienced person fool around with your eyes.

Do use mechanical protection if necessary.

Do use your prescribed glasses if needed.

Do go to the eye clinic or doctor as soon as eye disturbances are noticed.

Do get plenty of sleep, rest, relaxation and good food.

References

Bristol, L. D., M.D., Educational Needs in the Field of Industrial Health, *Journal of the American Medical Association*, Volume 119, August, 1942.

Diehl, Harold, M.D., *Healthful Living*, New York: McGraw Hill, rev. 1941.

Resnick, Louis, *Eye Hazards in Industry*, New York: Columbia University Press, 1942.

—ALMA EBLING
Cleveland, Ohio

The First Inter-American Congress on the Prevention of Blindness

The forces of civilized progress are strong in South America. That part of the world decisively awakened to the modern era after World War I. Notable steps toward modernization were made. Then came World War II, with its great economic disturbances. The vitalized spirit of progress is challenged—not conquered—by current difficulties. In such a setting the First Inter-American Congress on the Prevention of Blindness was conceived last year and held in Rio de Janeiro July 1–5 this year. Foremost leaders in ophthalmology, particularly in Argentina, Brazil and Montevideo exhibited a sincerity and enthusiasm that should be inspiring to leaders in this humanitarian cause in the United States. We can aid and encourage

our neighbors in the great undeveloped continent to the South—and we can profit, too.

The subjects to which the score of formal papers of the Congress were devoted testify to the extensive interests of ophthalmologists who, with only two exceptions, were the authors of the papers. Four papers dealt with the social importance of the prevention of blindness. They revealed the sincere and effective activities in various countries and communities of such leaders as Dr. A. Vasquez Barriere in Uruguay, Dr. Baudilio Courtis in Argentina, Dr. Nelson Moura Brasil and Dr. Herminio Conde in Rio de Janeiro, Dr. Moacyr E. Alvaro in San Paulo, Dr. Colombo Spinola in Bahia, Sta. Adela Ruiz in Paraguay and Dr. Manuel Arroyo in Guatemala. Five papers dealt with trachoma, which is a prevalent disease in many localities. The other ten formal papers were devoted to light and sight, to the visual factor in traffic accidents, to eyesight and eyestrain in school-children, to school lighting, to eyesight in industry, to ocular hygiene and to ophthalmology.

To the author who presented a paper on Light and Sight, highlighting the decades of research prosecuted by himself and Frank K. Moss, the breadth of the program and the widespread interest in controllable aids to seeing, such as light and lighting, was particu-

larly gratifying. The Congress was asked by some countries to prepare a code on the prevention of blindness. As a consequence, a good beginning has been made for more general and more effective legislation covering those aspects which will not only tend to prevent blindness but will tend to conserve vision. The suggestions contained, for example, the first simple recommendations for lighting as well as for various other aids to seeing.

As is usual, the discussions and intimacies developed at such a meeting afford one better opportunities of becoming acquainted with the activities and attitudes of the leaders and of various national and local committees in this branch of human welfare. Likewise, visits to various institutions devoted to diet, to blindness, to hygiene, and to medicine yielded actual glimpses of the work being done. One might not expect such activity and progress as he found on every hand. One might not expect such progressive institutions of ophthalmology or such an ultra-modern eye-clinic as that of Dr. Nelson Moura Brasil do Amaral in Rio de Janeiro, who was honorary president of the Congress. One could not witness these practical examples of modern progress without a feeling of great respect and assurance that South America is going forward under the proper kind of leadership. One could not witness daily the boundless energy and

sincere enthusiasm of Dr. Herminio de Brito Conde, secretary general of the Congress, without feeling certain that this great humanitarian movement would go forward regardless of any obstacles.

Amidst all these activities one from the United States was always conscious of the good-neighbor principle and of its importance in our Western Hemisphere. The intermingling of professional men in a humanitarian cause provides an ideal impetus to good-neighborliness. This is a fact that might well be noted by the governments of this Western World. There are many more obstacles in the way of developing understanding and cooperation among nations than among individuals. But the former can rest firmly only on a foundation of individual friendships. The United States and the countries of South America have been far apart in distance. Relationships have suffered on account of this distance, but the airplane is already reducing that disadvantage. In a few years we will be only a day, or two or three, apart.

After spending three weeks intimately with such leaders in a common cause, one realizes that the

finest and most permanent friendships are cemented by common interest in the promotion of human welfare and happiness. On leaving Rio de Janeiro by Panair one rises over that beautiful romantic harbor. As one circles, the mountains near at hand appear formidable and then greater mountains in the distance rise above this rugged horizon. All these are symbolic of obstacles—but obstacles that are surmountable. And as the airplane straightens out and points toward home one passes near that great statue of Christ—Corcovado—surmounting a familiar peak. It symbolizes the kind of spirit in human relations that makes good neighbors of individuals—and can make good neighbors of nations. The First Inter-American Congress was a good example of that spirit. May it be the pattern for many more meetings which, through mutual interest in human progress in welfare and happiness, will make this Western World an excellent example for the remainder of the world which periodically bleeds because of the absence of good-neighborliness.

—MATTHEW LUCKIESH, D.Sc., D.E.
Cleveland, Ohio

Note and Comment

Annual Meeting of the National Society.—The National Society for the Prevention of Blindness is planning to devote its annual meeting in New York City, December 3, 1942, to the subject of inter-American aspects of prevention of blindness. The meeting will take place in the Hendrik Hudson Room, Roosevelt Hotel, Madison Avenue at 45th Street, at 4.00 P.M. Representatives from South and Central America, as well as from North America, are invited to participate. Dr. Moacyr E. Alvaro, eminent South American ophthalmologist and Secretary-General of the National Committee for the Prevention of Blindness of Brazil, has accepted the invitation to present the subject of developments in prevention of blindness and the available resources for carrying on programs in Latin America. The public health aspects of sight conservation in Latin America will be discussed by a speaker to be announced. In connection with the annual meeting program, the Society will conduct an exhibit of posters, periodicals and publications from many North, South, and Central American countries, and will at the same time present an extensive exhibit of the various aspects of sight conservation work: industrial, medical, educational, and social. The exhibit hall, adjacent to the Hendrik Hudson Room, will be open at 10.30 A.M., December 3, and Society staff members will be available for consultation.

Sight-Saving Class Exchange Discontinued.—Readers of the REVIEW will learn with regret that the November, 1942, issue of the *Sight-Saving Class Exchange* will be the last number to be issued by the Society. This decision was reached because of the fact that the *Journal of Exceptional Children* has been so developed as to include material of interest to teachers in all types of special education, and therefore it seemed unnecessary duplication to distribute a special publication on sight-saving classes. For the past eighteen years, the Society provided the *Exchange* to sight-saving class teachers and supervisors as part of its service. Mrs. Winifred Hathaway, who was largely responsible for this publication, will continue to serve educators through consultation and correspondence; and many items of interest to them will be provided in the Society's *Newsletter*, which will appear four or five times a year, beginning early in 1943.

Eye Conditions Among Indians in Selective Service.—Data available on 591 Indians rejected for military service show that 124 of the rejections were for eye defects, according to figures published in a recent issue of *Public Health Reports*. Fifty-eight of the 124 were reported to have trachoma. This reveals an incidence of trachoma among Indians 21 to 35 years old of 3.6 per cent, which is somewhat lower than the estimate of the disease among the general Indian population. Eye defects ranked first among causes of rejection, followed by tuberculosis; defective teeth, the major cause of rejection among the national population, was sixth on the list among Indian rejectees.

Inter-American Relations in Ophthalmology.—A recent issue of the *Transactions* of the American Academy of Ophthalmology and Otolaryngology, reports the following item on Latin America:

“Through the generosity of the W. K. Kellogg Foundation of Battle Creek, Michigan, the Pan-American Congress of Ophthalmology announces the establishment of an international graduate student exchange. With the co-operation of the Department of State of the United States Government, 25 graduate physicians from Latin America will be brought to the United States for graduate training in ophthalmology. They will be assigned in turn to 17 of the leading ophthalmic institutions to serve as accessory residents for a minimum of one year, or longer if they show unusual ability. The traveling expenses to and from the country of origin will be paid, and each man will receive one thousand dollars a year from the Foundation.

“The Latin American physicians will be chosen by a committee in each country composed of the Dean of the Medical School, the Professor of Ophthalmology and an already existing Committee of the American Legation under the supervision of the Department of State. The number of scholarships allotted to each country will be based upon the population and upon the number of ophthalmologists in the country. Applications must be filed through the local Professor of Ophthalmology and forwarded to the secretaries of the Pan-American Congress of Ophthalmology. Those south of Panama are to be sent to Dr. M. Alvaro, Sao Paulo, Brazil, and those north to Dr. Conrad Berens, New York City. Each application must contain full information regarding the candidate and must bear an exhaustive endorsement by the Professor of Ophthalmology. After preliminary consideration by the Secretarial Board of the Pan-American Congress of Ophthalmology, the applications will be returned to the above mentioned local committees

for selection of candidates. The total information about the selectees will be sent by the local committees through the Pan-American Congress of Ophthalmology secretaries to the Foundation for final acceptance.

"Eligible for such scholarships are Latin-American physicians who are natives of the country from which the application arises. The applicant must be less than 30 years of age, must be a graduate of a recognized medical school, have served at least one year as a rotating interne or as assistant in a medical clinic or have had at least three years of general practice of medicine, be particularly interested in ophthalmology, have a good working knowledge of the English language, agree to return to his home country to practice and teach ophthalmology upon completion of his scholarship and agree to submit to the usual discipline of whichever institution he is assigned to. Furthermore, he must agree to attend at least one and preferably two meetings of any of the National Societies of Ophthalmology of the United States.

"The ophthalmic institutions accepting the Latin-American graduates have agreed to extend to them the same training that is given to their own residents with the single exception that in some of the clinics physicians not licensed in the United States are not permitted to perform operations upon patients. However, they may assist.

"Applicants will be assigned to the ophthalmic institutions by the Pan-American Congress of Ophthalmology Committee, as they are accepted. No consideration will be given to requests for assignment to specific clinics. The work will start at any time as rapidly as transportation can be arranged. The following ophthalmic institutions are participating:

The Massachusetts Eye and Ear Infirmary
The Ophthalmic Institute of Columbia University
Bellevue Hospital and College
New York Eye and Ear Infirmary
Wills Eye Hospital of Philadelphia
Wilmer Institute of Johns Hopkins
University of Michigan
University of Cincinnati
Northwestern University
Illinois Eye and Ear Infirmary
Cook County Hospital
The Mayo Clinic
University of Iowa
Washington University of St. Louis
Tulane University of New Orleans
Leland Stanford University
University of California"

I.E.S. Announces Publication of "Recommended Practice of Office Lighting."—Designed to fill the need for authoritative recommendations for all types of office lighting, a new bulletin, "Recommended Practice of Office Lighting," has just come off the presses and is now available from the Illuminating Engineering Society, 51 Madison Avenue, New York City. Prepared by lighting specialists of the I.E.S. Committee on Lighting Practice, the 48-page book constitutes an authentic guide to efficient lighting for easier seeing in offices. Recommended values of illumination for the many and varied seeing tasks encountered in modern business practice are given, and specific methods for achieving improved lighting are offered. All of the factors affecting seeing in offices are comprehensively covered; even the colors of office machines and their effect upon seeing efficiency are discussed. Both artificial and natural lighting are covered in the treatise, which is based upon the most scientific principles of modern illuminating engineering.

Treatment of Lewisite Burns of the Eye.—Carefully controlled experiments made by the National Research Council indicate that the most effective treatment for lewisite burns of the eye is a thorough washing with large amounts of 2 per cent solution of sodium bicarbonate in water or with plain water, reports a recent issue of the *Journal of the American Medical Association*. This irrigation should be carried out as soon as possible after exposure. Hydrogen peroxide, which was recommended in previous releases from various agencies, has been found to be ineffective.

Pennsylvania's Sight Restoration Program.—The inauguration of a new program in the field of state care for blind and visually defective persons, in which responsibility for administering a program of prevention of blindness and conservation of vision is placed upon the State Council for the Blind, is announced by Alfred Cowan, M.D., consulting ophthalmologist to the Pennsylvania State Council, in the *Pennsylvania Medical Journal*, April, 1942. "We should appreciate any suggestions you would like to make," writes Dr. Cowan.

A bulletin which follows his letter contains information concerning services to be made available, eligibility for service, and administrative procedures.

Under the heading, "Medical Examination," a subhead lists as the total expenditure for the attending ophthalmologist the following fees:

First examination and report	\$3.00
Cataract extraction—to include postoperative treatment, refraction, and prescription for glasses	35.00
Glaucoma—operation for permanent relief of glaucoma (iridectomy or trephining) to include treatment during hospitalization	35.00
Enucleation	25.00
Detached retina operation with care during hospitalization . .	35.00
Pterygium operation and postoperative care	15.00
Iridectomy and care during hospitalization	25.00
Ectropion or entropion operation	25.00
Refraction	5.00
Office visits and treatment (paid not oftener than every two weeks if following operation)	2.00

Care and fee for any condition not specified above will be determined by the State Council for the Blind on application by the attending ophthalmologist.

A letter from Dr. Thomas R. Gagon, Chairman of the Committee on Conservation of Vision of the Medical Society of the State of Pennsylvania, comments as follows on the question of fees:

"It was the consensus of the ophthalmologists that the fee of \$15 for a pterygium operation was disproportionately high in comparison to the \$35 fee allowed for the difficult operations of cataract extraction and iridectomy or trephining for the relief of glaucoma. However," Dr. Gagon continues, "personally, I believe the program to be a good one and I feel confident that it will receive the co-operation of the ophthalmologists."

Warning: Remember Glaucoma.—A warning to keep the possibility of glaucoma in mind, especially in treating the eyes of a person past 50 years of age, is implicit in a recent report appearing in the *Journal of the American Medical Association* describing a case in which failure to diagnose glaucoma was held to constitute malpractice. A determining factor in the decision of the court was that in spite of progressive "blurring and impairment of vision," no test of tension was made with a tonometer.

Pan-American Code for the Prevention of Blindness.—The draft for a Pan-American Code for the prevention of blindness was prepared in July by the first Brazilian Congress for the Prevention of Blindness, held in Rio de Janeiro. Through the foreign department of Brazil a copy of the draft will be submitted for approval to every nation of the Western Hemisphere, it is stated in the September 12 issue of the *Journal of the American Medical Association*. Says the *Journal*:

“This code suggests the creation, in each nation, of a national council for the prevention of blindness, which will be in charge of the administration of (1) prevention of the contagious diseases of the eye (mainly ophthalmia neonatorum and trachoma); (2) prevention of congenital and hereditary causes of blindness (congenital syphilis and hereditary diseases and malformations of the eye); (3) prevention of occupational injuries of the eye (protection of the workmen, evaluation of the degree of disability, compensation laws); (4) ophthalmologic inspection of school children; (5) eyesight conservation classes; (6) legislation to foster and control the correct illumination of school rooms and workshops; (7) legislation to control the work of the optometrists and commerce in lenses; and (8) census taking of the blind and other persons affected with eye disabilities.”

Re Farsightedness and Visual Acuity.—One of our readers and friends—an ophthalmologist—disagrees with the views set forth in the quoted paragraph under “Farsightedness and Visual Acuity,” appearing on page 150 of the June REVIEW. His argument is: “The farsighted eye (hyperopic) will average a smaller pupil because of the accommodation activity called for in distance vision, and for this reason, of two eyes with normal 20/20 vision, the one with the smaller pupil will have better retinal detail for distant objects. Ask the camera user’s opinion!”

Current Articles of Interest

Changes in Ocular Refraction from Systemic Causes, L. Weston Oaks, M.D., F.A.C.S., *The Eye, Ear, Nose and Throat Monthly*, Volume XXI, No. 7, August, 1942, published monthly by The Professional Press, Inc., 5 N. Wabash Avenue, Chicago, Illinois. In the literature dealing with changes in ocular refraction from systemic causes, the following causes are described: alkalosis, strict dietary change, toxemia of pregnancy, toxemia from arsphenamine therapy, toxemia from prontosil therapy, toxemia from acute exanthemata, early developing cataracts, arteriosclerosis, and—most common among written observations—diabetes mellitus. To these the author has added toxemia of acute alcoholism, having observed an increase in ocular refraction of one and one-fourth diopters in the right eye and one and three-fourths diopters in the left eye following an acute alcoholic intoxication in a man of 31 years. This increase disappeared in ten days.

Dr. Oaks reviews various theories that have been propounded as to the mechanism involved in these refractive alterations: a change in the refractive index of the vitreous; an unequal change in the refraction of aqueous and vitreous, possibly because the aqueous sugar content more closely follows that of the blood plasma than does the vitreous sugar content; and changes in osmotic pressure between the lens cortex and aqueous, causing the cortex to take up an additional amount of fluid and thus increasing its curvature and refractive power.

However, the fact that changes in refraction are caused alike by many toxins, each of which disturbs the body in a different fashion, leads Dr. Oaks to suggest that it may not be the primary poison involved that actually affects the organs of vision. He states that it would seem reasonable to suspect the action of some secondary biochemical substance—an allergen—set into motion by the primary toxins, which produces the alterations in ocular refraction through a disturbance of the sympathetic-parasympathetic-endocrine balance.

Sulfapyridine in Ophthalmia Neonatorum, Arnold Sorsby, M.D., F.R.C.S., Elizabeth L. Hoffa, L.R.C.P. & S.Ed., and Elspeth W. Smellie, B.M., B.Ch., *British Medical Journal*, March 7, 1942, published weekly by the British Medical Association, London, England. The authors report on 322 in-patient cases of ophthalmia neonatorum, of which 273 were treated by sulfapyridine by mouth and a control group of 46 treated by the classical methods of local therapy. Of the total, 89 were gonococci-positive and 233 gonococci-negative.

Sulfapyridine by mouth was used irrespective of the causal organism. The most effective dosage was found to be an initial dose of 0.25 gm., followed by the administration of 0.125 gm. every four hours until 24 hours after a clinical cure was obtained. The only local treatment consisted in irrigations with saline solution during the first day in cases with profuse purulent discharge.

The authors observed no selective action on gonococci. Staphylococcus, against which sulfapyridine is commonly regarded as only feebly effective, was the causal agent in 111 of the 200 non-gonococcic cases, yet of the non-gonococcic group 126 recoveries (63 per cent) were produced within 8 days. In gonococci-positive cases the percentage of recoveries within 8 days was 58.9.

Vitamin C (Ascorbic Acid)—Its Therapeutic Value in Inflammatory Conditions of the Cornea, Wing-Commander T. Keith Lyle, R.A.F.V.R. and Squadron-Leader D. W. McLean, R.A.F.V.R., *British Journal of Ophthalmology*, June, 1941, published monthly by Pulman, George and Sons, Ltd., 24-27 Thayer Street, W. 1, London, England. In two separate R.A.F. hospitals, Wing-Commander Lyle and Squadron-Leader McLean, working independently, used large doses of vitamin C in the treatment of inflammatory conditions of the cornea. The fact that ascorbic acid, which exists in high concentration in the lens and cornea, is of a group of substances that maintains a fine balance between the processes of reduction and oxidation by acting either as a reducing or an oxidizing agent—whichever action is called for—suggested to the authors that by introducing an excessive amount into the system, the metabolism of the cornea might be accelerated and consequently the healing of an inflammation of the cornea hastened.

Although the authors believe there is much further work to be done on the subject, they feel that their experiments justify the following conclusions:

"1. In certain corneal conditions—notably ulceration, superficial type of keratitis and chronic corneal opacities—treatment by means of ascorbic acid intravenously is of therapeutic value. The improvement in most cases is almost dramatic.

"2. In most cases treated there is no reason to believe that a general vitamin C deficiency exists. It appears, therefore, that the beneficial results are obtained by flooding the bloodstream with excess of ascorbic acid.

"3. Ascorbic acid appears to be of no value in the treatment of iritis. It may even have a detrimental effect in certain instances.

"4. The injections used (ascorbic acid "Roche" concentrated vitamin C ampoules, 500 mgs. per injection) caused no local or general reaction.

"5. *Dosage*: We recommend the daily injection of 500 mgs. intravenously until active inflammation of the eye has ceased, preferably followed by ascorbic acid tablets given orally (Tabs. ii t.d.s., each tablet containing 250 mgms.)."

Visual Results in the Trachoma Clinics of Southern Illinois, Harry S. Gradle, M.D., *Journal of the American Medical Association*, July 4, 1942, published weekly by the American Medical Association, 535 North Dearborn Street, Chicago, Illinois. Dr. Gradle sums up the results of sulfanilamide therapy on a group of trachoma cases as contrasted with the usual local treatment given a control group in the trachoma clinics of southern Illinois. All cases were under observation for a minimum of two years. The author calls attention to the fact that in the control group the percentage of patients who showed improvement of vision was only about one half that of group 1 (those treated with sulfanilamide), while the percentage of patients who showed positive losses in vision was more than double that of group 1. Only stage 1 and stage 2 were included in the study. In both groups the number of eyes that became industrially blind (the definition used of industrial blindness being vision of less than 20/200) was less than 1 per cent.

Epidemic Keratoconjunctivitis, Michael J. Hogan, M.D., and Joseph W. Crawford, M.D., *American Journal of Ophthalmology*,

September, 1942, published monthly by the Ophthalmic Publishing Company, 837 Carew Tower, Cincinnati, Ohio. Drs. Hogan and Crawford report on a severe epidemic of keratoconjunctivitis occurring in, but not limited to, shipyard workers on the West Coast. One hundred twenty-five cases were studied. A great variation in the clinical picture was found, but the authors point out that an early differential diagnosis may be made if the following points are kept in mind: (1) The sudden onset, with glassy edema of the caruncle, semilunar fold, lower cul-de-sac, and bulbar conjunctiva; (2) early occurrence of tiny petechial hemorrhages on the mucous membrane in some instances; (3) the severity of the conjunctival signs *in the absence of any discharge*; (4) enlargement of the preauricular and other regional nodes, which usually occurs early; (5) the absence of causative bacteria in smears and cultures; and (6) the presence of a lymphocytic type of exudate in smears and scrapings instead of a polymorphonuclear exudate that is seen in other acute forms of conjunctivitis. At the onset, the patients typically complained of a "sandy" sensation, and in some cases there was intense itching, as in an allergic disease. The skin of the lids and cheek became tender. Keratitis occurred in about 75 per cent of the cases, although this figure may vary in different epidemics. Severe conjunctivitis was not always followed by keratitis, and at times keratitis occurred without a history of preceding conjunctivitis.

The authors believe it is probable that the disease is endemic in the Far East, where the largest epidemics have been reported, and that it was brought to Hawaii and from there to the West Coast. They further state that although the disease is contagious it is not so to an exceptional degree, depending for its epidemic nature upon favorable conditions, which include close contact, unhygienic surroundings, and a fairly crowded population of individually susceptible persons.

The disease was observed to be transmitted from human being to human being even in the absence of positive bacteriologic findings. This, together with the early, rapidly progressive involvement of the lymphatics of the lids and conjunctiva and of the regional lymph apparatus, seems to the authors to point to a virus as the causative organism, rather than bacteria.

Drs. Hogan and Crawford report that therapy proved of little benefit in most instances. Once the conjunctivitis became severe, no treatment changed its duration, which averaged 13 days. Palliative measures seemed to give some relief in milder forms of the disease; these consisted in the covering of the affected eye from the beginning of the disease, the use of iced compresses and the instillation of 1 per cent atropine drops with the advent of keratitis. The most successful treatment, aside from the above symptomatic therapy, consisted in either roentgen therapy or 5 per cent sulfonamide ointment used locally six times daily, or a combination of the two.

The authors indicate that since the disease is self-limited, the ultimate prognosis as regards vision is good.

Orthoptics, Maynard C. Wheeler, M.D., *Archives of Ophthalmology*, August, 1941, published monthly by the American Medical Association, 535 North Dearborn Street, Chicago, Illinois. Following a clinical evaluation of recent advances in this field, the author concludes by emphasizing the following points:

Orthoptic methods give valuable information about binocular function, which with further experience should prove a guide in the operative treatment.

Orthoptic training is on a much firmer footing than it was a few years ago, but its indications and limitations need further defining.

Orthoptic training should be carried out only by a qualified technician with the proper equipment under the supervision of an ophthalmologist.

Practical considerations greatly limit the application of orthoptic methods; at present, therefore, it is impractical for the average practitioner to use them routinely.

Research clinics should be encouraged to continue in as many institutions as possible, for by the building up of a large mass of data the answers to the questions presented may be reached.

Toxic Amaurosis Due to Quinine, Louis Pelner, M.D., and Edward Saskin, M.D., *Journal of the American Medical Association*, August 8, 1942, published weekly by the American Medical Association, 535 North Dearborn Street, Chicago, Illinois. Because of the widespread use of quinine as a cold remedy, an analgesic, and an ecboic, as well as in the classic treatment of malaria, the

authors offer for consideration the non-infrequent toxic reaction: amaurosis. Persons with sensitivity will show rapid and severe visual loss after the intake of a small amount of quinine in a cold remedy. Prolonged administration or overdosage will produce similar difficulties in other less sensitive persons. The subjective symptom is typically that the patient feels a curtain drawn over the eye, beginning peripherally and finally causing total obscuration of vision. The fundus picture is of closure of the central retinal artery, *i.e.*, noticeably narrowed retinal arteries, somewhat dilated veins, intense retinal edema and a cherry-red spot in the macula. The pupils are dilated and fixed.

Therapy, state Drs. Pelter and Saskin, consists in the immediate discontinuance of administration of quinine and prompt vasodilation either by means of intravenous injection of sodium nitrite solution or by inhalation of nitrites. Supportive stimulants, such as strychnine and digitalis, may be indicated. Ethylmorphine hydrochloride has been used locally by the authors for its vasodilating effect and vitamin B complex may be given for its presumable protecting action on nerve structures.

They report on a case of complete amaurosis in a malarial patient who had received 35 grains of quinine over a period of three days. Intravenous injection of a solution of sodium nitrite produced a dramatic response.

When there is proper recognition of the condition and rapid therapeutic vasodilation, the tendency is toward recovery with some loss of peripheral field, according to the authors. However, cases of permanent blindness are on record, they caution, and quote a recent statement that in every case of optic nerve atrophy without a demonstrable cause the possibility of a toxic reaction to quinine should be looked for.

Trachoma Nursing in the U. S. Office of Indian Affairs, Grace G. Engleman, R.N., *American Journal of Nursing*, April, 1942, published monthly by the American Nurses' Association and the National League of Nursing Education, 1790 Broadway, New York. The functions of fifteen trained trachoma nurses working in hospitals, schools, and summer clinics at the various reservations throughout the north, northwest, south, and southwest, are

described. Pointing out the fact that many toxic and side effects are possible when sulfanilamide therapy is employed, the author lists the clinical features with the usual time of occurrence. A careful description of the techniques used in administering silver nitrate, chaulmoogra oil, quinine bisulphate, copper and zinc sulphate, and sulfathiazole ointment is included, as well as a discussion of surgical care with regard to grattage, repair of entropion and trichiasis, removal of pterygium and extirpation of the lacrimal sac and cataract operation. Suggestions for prevention and control of the disease are offered. After stating that it had been observed that sulfanilamide therapy benefitted greatly some of the low-vision cases, the author cited a case whose binocular vision improved from 20/100 to 20/20 after two series of treatments of ten days in length with a ten-months period between the series.

Trachoma, Wesley G. Forster, M.D., *American Journal of Nursing*, April, 1942, published monthly by the American Nurses' Association and the National League of Nursing Education, 1790 Broadway, New York. In this general article the author discusses the etiology, symptoms and course, diagnosis, and treatment. Four stages of the disease are described, based primarily upon the condition of the lids. With regard to treatment, Dr. Forster points out that sulfanilamide therapy in a small group of cases resulted in 100 per cent arrested cases, and he states that with the continued use of sulfanilamide the Indian Service looks forward to the time when the disease will become a rarity among the Indians.

The Treatment of Syphilitic Primary Optic Atrophy, Joseph Earle Moore, M.D., Richard D. Hahn, M.D., Alan C. Woods, M.D., and Louise Sloan, Ph.D., *American Journal of Ophthalmology*, July, 1942, published monthly by the Ophthalmic Publishing Company, 837 Carew Tower, Cincinnati, Ohio. A study of the results of six methods of treatment in 250 cases of primary optic atrophy due to syphilis, from 1918 to 1940, inclusive, is presented by the authors and the following conclusions drawn in evaluation of the various treatments:

"1. Syphilitic primary optic atrophy occurs most frequently in association with tabes dorsalis, although together with pupillary

changes, it not infrequently may constitute the only clinical evidence of neurosyphilis. It is probable that the fundamental process is the same in all types of neurosyphilis.

"2. The course of the untreated disease is extremely variable. The process almost always becomes bilateral soon after onset of symptoms, and 90 per cent of untreated patients are blind within 12 years. There is a small group of patients in whom progression is quite slow.

"3. Our data suggest that the development of syphilitic primary optic atrophy can be prevented by the adequate routine treatment of early syphilis.

"4. Routine therapy with the trivalent arsenicals and bismuth is of no value in the treatment of syphilitic primary optic atrophy.

"5. Subdural treatment by the Swift-Ellis technique should be abandoned. Its dubious value in an occasional patient is outweighed by a risk of sudden total loss of vision in about 10 per cent of those treated.

"6. Fever therapy (in our hands malaria, since we have had no experience with the use of mechanically induced fever in this connection) is the only efficacious method of treatment.

"If visual failure progresses in spite of fever therapy, no other form of therapy is likely to be of value. It must be emphasized that these conclusions are subject to specific limitations imposed by the material upon which this study is based. Since malaria therapy was, by and large, not given to patients with the most rapidly progressive type of disease, no statement is permissible as to its efficacy in this group. It is certain that many of our untreated and routinely treated patients would not have been benefited by any treatment; indeed in many there was literally no time for treatment. The fact remains that where there is time for treatment, malaria is of definite practical value. Whereas early diagnosis is often possible only by routine determination of the visual fields, fundi, and visual acuity, this procedure is recommended as a routine supplement to the clinical and laboratory examinations in all patients with neurosyphilis. Only by early diagnosis and the immediate induction of malaria is there any hope of arresting the most fulminating cases."

Book Reviews

A HANDBOOK OF OCULAR THERAPEUTICS. Sanford R. Gifford, M.D. Third edition, thoroughly revised. Philadelphia: Lea & Febiger, 1942. 410 p. ill.

Ophthalmologists should welcome, particularly at this time, the appearance of a new and up-to-date edition of this authoritative book; for, while the emphasis on prevention of disease was a laudable development of recent years, the exigencies of the war will probably focus the minds of medical men more on the treatment of disease and the preventive phase will unavoidably be pushed to the background. Much progress was made in the past four years, since the appearance of the second edition of this "Handbook," in the treatment of certain diseases of the eye, such as toxic amblyopia and glaucoma; and several useful drugs have been recently introduced, notably sulfanilamide and related compounds, not to mention the many natural and synthetic vitamins. A thoroughgoing evaluation of all these recent developments is absolutely necessary, since reports in the literature are confusing and often even contradictory.

A special section is devoted to the sulfonamide group of drugs, besides discussing them under the headings of the diseases in which they are useful. These diseases include acute and chronic conjunctivitis, ophthalmia of the newborn, trachoma, acute infections of the tear sac, and sympathetic ophthalmia.

Sulfanilamide, the original drug in this series, was produced in 1908 in the German dye industry; but its effect on infections was not discovered until 1933. The first report on the use of the drug in combating an eye disease was made in 1937, when it was found to be of great benefit in gonorrheal ophthalmia. By 1939, one thousand compounds of this group had been prepared, but in most of these the active substance still was sulfanilamide. The compounds which are in general use today besides sulfanilamide are sulfapyridine, sulfathiazole and sulfadiazine.

The section on vitamins helps to clarify a topic which is still in a confused state as regards clinical application, perhaps due to the

exaggerated claims made by commercial concerns. It is admitted that vitamin-A deficiency may cause night blindness and other eye affections, but it is doubtful whether this condition is as wide-spread as some believe it to be, for the reliability of the instrument used in making dark adaptation tests for vitamin-A deficiency has been questioned by some authorities.

Vitamin B₁, or thiamin chloride, was shown by Carroll and Johnson to relieve the toxic amblyopia of alcoholics, even when the intake of alcohol was not reduced. A deficiency of riboflavin, or vitamin B₂, has recently been shown to cause a peculiar form of keratitis associated with blood-vessel formation in the cornea. Vitamin C, or ascorbic acid, has been tried in the treatment of cataract, but was found to be useless. In fact, nothing short of surgery is known to cure cataract.

Several new drugs have been introduced for the treatment of glaucoma, but their clinical merits over pilocarpine and eserine have not yet been established. They are prostigmin, mecholyl, doryl, and furfural trimethyl ammonium iodide (furmethide).

Recently, the press has featured certain enthusiastic claims for cortin, the extract of the adrenal cortex, in the treatment of glaucoma and myopia. "These claims have not been confirmed by several reliable investigators."

I have given only some of the highlights which impressed me on reading Dr. Gifford's book. Actually, it offers authoritative information on every phase of the vast subject. A selected bibliography of the more recent literature is included under each topic.

—ADOLPH POSNER, M.D.

NURSING IN DISEASES OF THE EYE, EAR, NOSE AND THROAT.
Manhattan Eye, Ear and Throat Hospital. Philadelphia: W. B. Saunders & Company, 1942. 298 p. Seventh edition.

The first part of this book gives a brief but comprehensive review of the anatomy and physiology of the eye, and a review of the most common diseases of the eye, which is timely and important in such a textbook. The chapters on preoperative, operative and postoperative care, together with illustrations of treatment trays and operating instruments, describe procedures as they are carried out in the Manhattan Eye, Ear and Throat Hospital, and

will be most helpful to hospitals not yet having established routines for the care of ophthalmological patients.

It seems rather unfortunate that a textbook on nursing diseases of the eye is considered complete by its authors when two vitally important subjects have been omitted. First, the psychological approach to the patient, or the application of the principles of psychiatry to ophthalmological nursing, and, second, the nurse's responsibility in teaching appreciation and conservation of vision to all patients. Certainly this latter aspect should not be overlooked in any opportunity for instruction to nurses, graduates or students, whether engaged in the field of public health nursing or in the hospital.

The chapters dealing with the ear, nose and throat discuss the anatomy, pathology, preoperative, operative and postoperative care. The chapter on the sulfonamide drugs seems particularly timely. Instrument lists and preparation of gauze supplies should be of value in organizing new departments. The material on the use and care of bronchoscopic instruments is concisely presented.

On the whole, this text would seem to be most helpful in clinics where routines are in the process of being established.

—ANNE M. HAHN, R.N.

THE RÔLE OF THE TEACHER IN HEALTH EDUCATION. Ruth M. Strang, Ph.D., and Dean F. Smiley, M.D. New York: The Macmillan Company, 1941. 359 p.

All educators can profit by studying "The Rôle of the Teacher in Health Education," and all readers of the book will find pleasure in many delightful expressions of universal truths.

People who are especially interested in sight saving will find attention given to the many aspects of that subject in relation to everyday experiences. Defects of vision are acknowledged by the authors as one of the serious and challenging limitations in the current health education program: "Defects of vision and hearing may impede a child's progress in school. The prevalence of sub-normal visual acuity has been reported in various surveys. Pupils in the Detroit public schools showed a decrease from the first to the eighth grades in percentage of individuals having normal acuity. Only half of the students entering the University of Minnesota had

normal acuity. About the same percentage of workers in an automobile industry were found to have normal vision."

Individual problems of eye conservation are dealt with as they would naturally arise in the home, school, and community. Adults working with children who have visual defects will appreciate the encouraging attitude illustrated by such suggestions as, "Examples of individuals who have the same handicap as a particular child can be introduced to him in person or through biographies so that he may become acquainted with their accomplishments and their fortitude. The health teacher has a powerful ally in the wisdom of the body and the resiliency of the human spirit."

Analysis of emotional problems resulting from illness and fatigue and insight into behavior of sick and well human beings are recognized by the authors as important in health education. Emphasis is rightly placed upon methods of influencing behavior of individuals throughout the twenty-four hours of the day. Sound principles of healthful living with practical illustrations selected from various levels of accomplishment make the book valuable as a sane all-round interpretation of health education.

National recognition of the important place of health in the war effort and a growing appreciation of the school's influence on health, give weight to the emphasis placed by the authors on the value of health education: "The most important resources of any country are its human resources, for a nation is no stronger than its citizens. Basic to their strength, efficiency, and capability for service is their health. It is therefore essential that each child growing up attain the best health possible for him. Such a high quality of health does not result from chance. It must be cultivated."

A timely and enduring contribution is made to the work of securing the necessary guidance in school health programs as indicated by this statement: "There must be someone in the school who understands child development, who is in touch with recent scientific discoveries relating to health, and who is acquainted with principles and procedures of effective education for health."

This excellent textbook is recommended for education courses in colleges and universities and for in-service courses for school administrators, physicians, nurses, teachers, and all other members of the school staff. The authors show a thorough understanding of

the meaning of health education and give a delightful interpretation of its significance, which is worthy of careful reading by all interested in any phase of education.

—PAULINE BROOKS WILLIAMSON

CONTACT LENSES. Theo S. Obrig. New York: Obrig Laboratories, Inc. 470 p. illustrated.

There has been such a great demand for contact glasses due to popularization in the daily press, that the appearance of this book is very timely. It is a most complete and thorough work. It is divided into ten chapters. The first three deal with anatomy, biochemistry, physiology and diseases of the eye in a more or less elementary way. (One should bear in mind that it is written for a non-medical reading public.) The last chapter refers to contact glass patents and a most exhaustive bibliography. In chapters from four to nine inclusive, a highly satisfactory description of the history, fitting, manufacturing technic and an exhaustive list of indications for the use of contact lenses is given. Obrig states that it took him over four years to develop and refine his method of taking impressions of the human eye, for making plaster casts, and for making the molded plastic contact glass. A chapter devoted to fitting of the all plastic molded glass is subdivided into the optical fit, the physical fit, the chemical fit and the psychological fit, which consists in eliminating the natural fear of wearing, inserting and removing the glass. One chapter deals with the various solutions available for the use of the liquid lens (the space between the cornea and the contact glass is filled with the solution which is gradually replaced by tears). Obrig states that highly alkaline solutions (pH 8 and 9) are better tolerated by the eye than acid solutions.

The all-plastic molded contact glass is made from a variety of polymethyl methacrylate or a synthetic resin which is made in the U. S. A. It is 60 per cent lighter than glass, it is not affected by lacrimal fluids, it is elastic and therefore resistant to breakage, it is completely transparent. Unfortunately in this chapter the commercial propaganda comes in strongly as the author makes quite an attempt to bring out the superiority of his glass over that previously made by others, which is in contrast with the objective tone of the rest of the book.

A good analysis of the causes for clouding of vision or irritability of the eye is presented and many helpful suggestions are offered to meet individual difficulties. Both physician and patient will find interesting and valuable reading in this book, but may I express my hope that it will not bring a false illusion to the lay people who are loath to wear glasses that contact glass is a panacea for all ills and that it can replace the ordinary spectacles.

—OLGA SITCHEVSKA, M.D.

MOTIVATION AND VISUAL FACTORS: Individual Studies of College Students, Irving Bender, Henry A. Imus, John W. M. Rothney, Camilla Kemple, Mary R. England. Hanover, New Hampshire: Dartmouth College Publications, 1942. 369 p.

This book contains the report of five years' intensive survey of members of the Dartmouth College class of 1940. The investigation and studies were done at the Dartmouth Eye Institute by Dr. Bender and his associates. The research centered around the problem of the existence, if any, of a relationship of an individual's visual defects to his whole psychological makeup. This is an entirely new problem which intimately links the ophthalmologist with the psychologist.

The book contains a complete record of twenty of the more than five hundred students used as subjects. For each of these students there is included a complete visual study, a psycho-portrait, followed by a brief summary of the visual factors in the light of the motivation of the subject. The investigators have refrained from drawing any absolute conclusions based on the statistical and psychological data gathered. They feel that much more research on the problem is needed before any broad statement can be deduced. Since these studies have been based entirely on persons at the college level where the personality of the individual has been molded fairly completely, there is need of similar research on persons belonging to a younger age group in order to determine, if possible, the nature of the influence of visual defects on the growth and development of the forming personality.

Although the work fails in its original purpose, viz.: to establish a critical relationship between visual factors and the motivational pattern of the individual, there is no doubt that these workers have

opened a new and fertile field of investigation. Vision is a complex physiopsychologic activity and an individual's adjustment to his visual defects is so deeply imbedded in the total life of the individual that it may be well-nigh impossible to separate these effects.

Of special interest to the ophthalmologist is the very complete collection of visual data on 124 students. The visual investigation includes measurements of corneal astigmatism, refractive errors, heterophoria, ocular rotations, fusional amplitude, peripheral fusion, aniseikonia, ocular dominance, color perception, with a final diagnosis and an estimation of visual efficiency.

—ARNO E. TOWN, M.D.

Briefer Comment

A STUDY OF RAILWAY TRANSPORTATION. Volume I. Teacher's Manual for Primary and Intermediate Grades with Bibliography. Volume II. The Stories Behind the Pictures for Primary and Intermediate Grades. Washington: Association of American Railroads, 1942. 118 p. ill.

Teachers of primary and intermediate grades will find these volumes of great interest and assistance in organizing and conducting units on transportation and the part it plays in the life of the American people. The project is divided into three parts: (1) the teacher's manual, containing not only suggestions and outlines but a very comprehensive bibliography directing teachers to books and periodicals relating to the techniques of the unit and to source material, including readers, songs, poems and work-table equipment; (2) Part 2 consists of a set of pictures portraying railway development, railway activities, railway occupations, locomotives and trains and other aspects of the railway transportation industry; and (3) Part 3 is presented in the form of a booklet containing a story and quiz for each picture.

It is evident that a great deal of careful preparation has been put into this work. The Association of American Railroads was not content with presenting the historical development of this form of transportation founded on fact, but conferred with educators to the end that the material might be in a form readily adapted by teachers to primary and intermediate school groups. The authors are to be congratulated upon having done an excellent job.

Current Publications on Sight Conservation

Note.—The National Society for the Prevention of Blindness presents the most recent additions to its stock of publications. Except for the more expensive ones, single copies are sent free upon request. Unless otherwise specified, they are reprinted from *THE SIGHT-SAVING REVIEW*. New publications will be announced semi-annually.

373. Eyesight in Industry. 6 p. (\$1.10 per C; \$10.00 per M.) Prepared especially for industrial executives.

374. Legibility of Comic Books, Matthew Luckiesh and Frank K. Moss. 8 p. 5 cts. A study of two groups of specimens, designated as "Average" and "Superior."

375. The Specialization of Conservation of Vision in Institutional Nursing, Cora L. Shaw, R.N. 8 p. 5 cts. Calls attention to points frequently overlooked in the student nurse's education.

376. The Restoration of Sight and Prevention of Blindness in Kansas, Harry E. Hayes. 20 p. 10 cts. Initiation, development and operation of the State Department of Social Welfare's program.

377. Sight Restoration and Patients' Reactions, Edith E. Gutzeit. 12 p. 10 cts. A study of 56 cases referred to the Prevention of Blindness Department of the Pennsylvania Association for the Blind.

378. Mobilization of State Forces for Prevention of Blindness, Robert

T. Lansdale, Chairman. A symposium consisting of "Legal Authorizations," John W. McConnell; and "Patterns of Practice," a panel discussion by 10 leaders in official and voluntary agencies. 60 p. 35 cts.

379. Glaucoma Means Potential Blindness, Willis S. Knighton, M.D. 6 p. (\$1.00 per C; \$7.50 per M.) A folder describing in outline form the symptoms and findings that the general practitioner must look for.

380. War and Eye Injuries, Olga Sitchevska, M.D. 8 p. 5 cts. Timely word on eye injuries on the battlefield, air raids and eye injuries, and poison gases and eye injuries.

381. A View of Prevention of Blindness in Relation to Public Health, Eleanor Brown Merrill. 8 p. 5 cts. A plea for the utilization by the prevention of blindness program of all lay and professional resources, and all voluntary and official agencies in the state.

382. Aniseikonia, Homer B. Field, M.D. 8 p. 5 cts. Discusses

the nature and methods of detecting aniseikonia and how the condition may be corrected.

383. Children's Services in Sight Conservation, Laura E. Dester. 12 p. 10 cts. The role of the Child Welfare Division of Oklahoma in conserving the sight of the needy children in that state.

384. Ophthalmia Neonatorum, J. Vincent Flack, M.D. 8 p. 5 cts. Emphasizes the need for continuing the drive on ophthalmia neonatorum.

385. Demonstrations of Medical Social Work in Eye Clinics, Elizabeth G. Gardiner. 12 p. 10 cts. Ten years of medical social work in eye services as promoted by the National Society for the Prevention of Blindness in a series of demonstrations.

386. First Aid for Eye Injuries, Arno E. Town, M.D. 6 p. (\$1.75 per C; \$15 per M.) Describes efficient emergency handling of eye injuries, prior to attention by an ophthalmologist.

387. Nutritional Defects and the Eyes, Benjamin Rones, M.D. 4 p. (\$1 per C, \$7.50 per M.) The part played by vitamins and the glands in eye health.

388. Care of the Eyes in Middle Age, Willis S. Knighton, M.D. 8 p. 5 cts. Radio address, WNYC, August, 1942.

389. The Ophthalmologist and the Partially Seeing Child, Winifred Hathaway. 6 p. (\$1.75 per C; \$15 per M.) The responsibility of the ophthalmologist and of the school system for providing special educational opportunities.

390. The Industrial Worker—His Eyes, Alma Ebling. 12 p. 5 cts.

D152. Perils at Play, Eleanor Brown Merrill. 4 p. (\$1.50 per C; \$12.00 per M.) Discussion of eye accidents in childhood. Reprinted from *National Humane Review*, January, 1942.

D153. Eye Health in Secondary Schools, Eleanor W. Mumford, R.N. 4 p. (\$1.50 per C; \$12.00 per M.) Presents eye problems in the 12 to 16 year age group. Reprinted from *Public Health Nursing*, October, 1941.

D154. Eye Conditions Among Pupils in Schools for the Blind in the United States, 1939-40, A Report for the Committee on Statistics of the Blind, C. Edith Kerby. 12 p. 10 cts. Reprinted from the *Outlook for the Blind*, February, 1942.

D155. Survey of Records of Glaucoma in Ophthalmic Clinics, Mark J. Schoenberg, M.D. 12 p. 10 cts. Results of a glaucoma case records survey in four ophthalmic clinics, and suggested survey form for evaluation of glaucoma records. Reprinted from *Archives of Ophthalmology*, April, 1942.

D156. The Employment of Physically Handicapped under Civil Service, George Lavos, 12 p. 10 cts.

An analysis of civil service personnel recruiting procedures, the actual placement of handicapped in civil service positions, and their efficiency. Reprinted from the *Outlook for the Blind and The Teachers Forum*, February, 1942.

D157. The Nurse Looks at Eye Problems in Industry, Eleanor W.

Mumford, R.N. 4 p. (\$1.50 per C; \$12.00 per M.) Lighting, vision testing, and eye emergencies—problems for the industrial nurse. Reprinted from *Public Health Nursing*, July, 1942.

D158. In the Interest of Preventing Blindness—Psychological Attitudes of the Visually Handicapped Toward Treatment, Ruth Emerson. 24 p. 15 cts. Reprinted from the *Social Service Review*, September, 1942.

Contributors to This Issue

Arno E. Town, M.D., a frequent contributor to the REVIEW, is a practising ophthalmologist in New York City, and serves on the staffs of Bellevue and Welfare Hospitals.

Lewis H. Carris, director emeritus of the Society, needs no introduction.

Benjamin Rones, M.D., is a practising ophthalmologist in Washington, D. C., and a member of the Society's Medical Liaison Committee.

Virginia Smith, latest addition to the Society's staff, has been active in the recently developed glaucoma program.

Willis S. Knighton, M.D., a faithful contributor, is on the staff of the New York Eye and Ear Infirmary.

Winifred Hathaway, associate director of the National Society, is a pioneer and an authority in the field of special education for partially seeing children.

Book reviewers: **Adolph Posner, M.D.**, in addition to his duties as a practising ophthalmologist, is devoting much time to the tonometer-testing station, located temporarily in the Society's office at 1790 Broadway; **Anne M. Hahn, R.N.**, is Nursery Department Head, Wilmer Ophthalmological Institute; **Pauline Brooks Williamson** is chief of the School Health Bureau of the Metropolitan Life Insurance Company in New York; **Olga Sitchevska, M.D.**, is assistant surgeon at the New York Eye and Ear Infirmary, and attending ophthalmologist, New York Infirmary for Women and Children; **Arno E. Town, M.D.**, mentioned above.

The Sight-Saving Review

Volume XII

Number 4

December, 1942

Table of Contents

	PAGE
LATIN AMERICAN DEVELOPMENTS IN THE PREVENTION OF BLINDNESS, Moacyr E. Alvaro, M.D.....	235
INDUSTRIAL EYE EFFICIENCY IN THE WAR PROGRAM, Charles P. Tolman.....	244
APROPOS OF GLAUCOMA—WHAT HAPPENED TO TWO PA- TIENTS, Mark J. Schoenberg, M.D.....	252
A YEAR OF SIGHT CONSERVATION WORK IN WARTIME, Eleanor Brown Merrill.....	259
THE PARENT'S RESPONSIBILITY IN THE DETECTION AND TREAT- MENT OF CROSSED EYES, Isadore Givner, M.D.....	266
THE FORUM: Glaucoma, Harry S. Gradle, M.D.....	270
NEWS OF STATE ACTIVITIES.....	275
NOTE AND COMMENT: Inter-American Aspects of Prevention of Blindness Dis- cussed at Annual Meeting.....	286
War Eye Injuries.....	289
Visual Standards for Motorists.....	289
Diet in Experimental Cataract.....	290
Source Material on Public Health.....	291
Social Hygiene Day.....	291
The Eyes of the Airplane Pilot.....	292
Steel Gets in the Eye.....	293
Asks Aid in Bringing New Eye Disease Under Control..	293

	PAGE
Meeting of the International Council for Exceptional Children.....	294
State Agencies in Prevention of Blindness.....	294
Edward Jackson, M.D., Sc.D., 1856-1942.....	295
Luther C. Peter, M.D., 1869-1942	296
CURRENT ARTICLES OF INTEREST.....	297
BOOK REVIEW by William H. Crisp, M.D.....	303
BRIEFER COMMENT.....	306
CONTRIBUTORS TO THIS ISSUE.....	307
INDEX.....	308

Latin American Developments in the Prevention of Blindness*

Moacyr E. Alvaro, M.D.

THE author points out some similarities as well as essential differences between the United States and Latin America in the attack on blindness.

BLINDNESS, as we all know, can be looked upon from two standpoints: the humanitarian and the economic. From a humanitarian point of view its importance can be understood either by closing one's eyes for a few minutes and trying to imagine how it would feel to be in that condition forever, or by reading such pathetic descriptions as that found in "The Rosary." From an economic standpoint blindness means possibly the worst kind of incapacity, since, in spite of the courage and independence of many blind individuals, there remain many who must be provided for, and some who must even depend on other people for assistance in routine daily activities. Much has been done in many countries to improve the situation of the blind, but the fact remains that it would be better to prevent blindness, and we know that it could have been prevented in about 70 per cent of all cases.

What is the Situation in Latin America?

Statistics on blindness in Latin America are rather scanty and in many instances obsolete. They show an average of about 1 to 1.5 blind in 1,000, varying considerably from one region to another. If the total population of the twenty Latin American nations is estimated at one hundred and twenty million, the number of blind persons in Latin America would thus be conservatively estimated

* Presented at the Annual Meeting of the National Society for the Prevention of Blindness, New York, N. Y., December 3, 1942.

at above 120,000. However, these statistics are based in almost every case on census data, and we all know that the percentage of blindness is considerably lower in an ordinary census than in a special census for the blind only. Evidence of this is what happened in Great Britain, where statistics showed about 7 blind persons in ten thousand, whereas, after a blind pension law had been passed, the number climbed up to more than 11. In order to have reliable statistics on prevalence of blindness which will permit comparing the situation in one region with that in another, it will be essential to define the concept of blindness. In some countries, there are still only vague definitions of blindness, such as "the inability to find one's way about alone"; in most, however, it has been established that blindness is equivalent to 20/200 vision or less in the better eye, or to a limitation of visual fields restricting peripheral vision to about $\frac{1}{6}$ of the normal. If this definition is taken, estimates of the number of blind persons in the United States are from 200,000 to 250,000, or approximately 1.5 to 2.0 per cent of the population. If these percentages are applied to the population of Latin America, we will have to reckon with a higher number of blind persons than the figure first mentioned, for this would give some 180,000 to 240,000 blind persons in Latin America. This estimate is probably nearer the truth, and should be the basis of our work in the future.

As long ago as the last two decades of the nineteenth century, Latin American intellectuals have shown decided interest in the problem of preventing blindness in their respective countries, and a large number of very good papers on the subject can be found in the medical literature of these countries. Unfortunately, however, very little was actually done in the beginning to prevent blindness from occurring. Direct measures to prevent blindness were: some legislation on the subject of preventing ophthalmia neonatorum in many Latin American countries and provisions for the enforcement of such decrees; the establishment of routine examination of the eyes of school children in several countries; and various measures to combat trachoma in the regions in which it was prevalent. Indirect measures were: the improvement of public health in general, improvement in the standards of the medical profession, including ophthalmology, the increased number of eye specialists, and

the better equipment of eye hospitals and of their out-patient departments.

In the last fifteen or twenty years, an increased interest in the problem of prevention of blindness was expressed in the forming of a number of societies and committees in the various Latin American countries with the specific purpose of promoting prevention of blindness. These agencies have generally been very active, and the aroused interest of the several Latin American governments in the problems of conserving sight is to their credit. After the establishment of these agencies not only has adequate legislation been passed to make compulsory the Credé method of prophylaxis for ophthalmia neonatorum, but actual distribution of the silver nitrate solution in ampules and its effective use has been brought about in several countries; better ophthalmological care for eye patients has been established; better lighting conditions and better protective measures against eye accidents have been enforced in industries.

Some of these agencies especially established for the prevention of blindness were affiliated with the International Association for the Prevention of Blindness, founded by Professor De Lapersonne, and of which Dr. Park Lewis was such an able and enthusiastic vice president. Others had government subsidy. Still others were originally established as charitable institutions for the care of the blind and gradually became interested in the prevention of blindness. The great majority, if not all, of these agencies, have in one way or another established bonds of friendship with the United States National Society for the Prevention of Blindness, and an active correspondence enables an exchange of views which have proved very beneficial. The older sister so far has provided the younger sisters with useful advice. In years to come, as the younger sisters get older, they will probably be able to take back more and tell of their own experiences.

What Can Be Done in the Future?

In order to establish a logical program for the prevention of blindness in any region, it is essential to have reliable data of the prevailing causes. In this respect much will have to be done, as information about the causes of blindness have not been made

available everywhere. The Committee for the Prevention of Blindness headed by Dr. Francisco Belgeri, of Buenos Aires, established by the Pan American Congress of Ophthalmology, of which Dr. Harry S. Gradle is president, has recently sent out a questionnaire to all its delegates, asking them about what has been done in each country with regard to:

- a. Prevention of blindness measures already taken and the plans established for the future.
- b. Prevalence of blindness in tabulated statistics with etiological considerations (either the classification developed by the Committee on Statistics of the Blind under the ophthalmological guidance of Dr. Conrad Berens, or the nomenclature of the American Medical Association to be used for that purpose).
- c. Legislation on prophylaxis of ophthalmia neonatorum.
- d. Legislation on industrial accidents.
- e. Health of school children, their eye examinations, sight-saving classes, etc.
- f. Social service in eye departments in any form.
- g. Organizations working on prevention of blindness.

When all this information comes in the Committee for Prevention of Blindness of the Pan American Congress of Ophthalmology will be in a position to start considering the solution of the problem of conserving sight as a whole in this continent. The Committee for the Prevention of Blindness of the Pan American Congress of Ophthalmology has been in close touch with the National Society for the Prevention of Blindness, and the co-operation of these two agencies will always be very useful to the cause.

Regarding indirect measures, which in the long run are effective in reducing the percentage of destruction of sight, substantial advances have already taken place throughout Latin America, more pronouncedly in certain parts, with a slower pace in others, but, generally speaking, substantial progress has been made or is being made in campaigns against syphilitic, gonococcal and tuberculous infections, and in general measures against communicable diseases, better industrial hygiene, multiplication of local health agencies, improvement of housing conditions and nutrition habits, better facilities for the care of the sick, higher educational standards, etc.

In spite of all these improvements, the problem of conservation of sight in Latin America is far from being solved: at least one or two persons in every thousand are doomed to lose their sight if further measures are not put into practice immediately. The data now being collected by the Committee for the Prevention of Blindness of the Pan American Congress of Ophthalmology will prove of great use in finding out what the local problems are in each region so that adequate steps may be taken in order to solve them specifically. However, the experience of thirty-four years' work, of which the National Society for the Prevention of Blindness can boast, and the experience acquired in other fields, could and should be used immediately everywhere. In spite of local variations, the problem in its more important aspects is more or less similar in most of its phases.

The co-operative efforts of many agencies are essential for the solution of this problem. Whenever such agencies do not exist, of course, it will be necessary to create them, and in every case it will be the task of those who are responsible for the conservation of sight to sift out the different items of the program, and take them one by one in order of precedence according to their relative importance in each area. A general plan can be outlined according to data gathered in the different parts of the world where prevention of blindness activities have been more progressive.

According to The United States National Society for the Prevention of Blindness, the sight conservation program* could be summarized as follows:

1. Measures for the control of communicable diseases, a task to be performed by the health authorities (and it is to be hoped that just as blindness due to smallpox has almost completely vanished from the records, blindness due to venereal and other communicable diseases will vanish, too, in a not-too-distant future).
2. Measures for prevention of eye hazards in industry and elsewhere, a task to be solved chiefly by safety engineers who should be familiar with eye accidents (to which I should like to add legal measures in the compensation field which would render medical assistance to the injured more efficient in terms of conserving sight).

* Based on an article by C. Edith Kerby to appear in the 1943 *Social Work Yearbook*.

3. Measures for investigation of hereditary factors of blindness, a job for the geneticist, but the practical conclusions therefrom to be used by the physician or social worker.
4. Measures connected with a general health program—better housing, health education, nutrition, etc.
5. Measures to ensure preventive eye examinations in order to have early diagnoses of eye ailments with a possibility of following up these cases and giving them adequate assistance.
6. Measures to ensure appropriate specialized medical assistance to everyone afflicted with an ailment of the eye. As things stand today, facilities for treatment of eye diseases vary considerably in the different regions of Latin America. Whereas in some parts there are adequate hospitals and out-patient departments for the treatment of all or at least a considerable number of charity patients, and the higher standard of living enables another large group to consult their private eye specialist, probably a well-trained doctor of high standards, in other parts the number of hospitals is limited, the equipment is inadequate, the doctors working therein did not have the opportunities for getting desirable training; and in still other places such facilities for treatment of eye cases are totally non-existent. Due to insurmountable transportation difficulties, the problem is not only to have a well-trained, high standard group of ophthalmologists, but to make sure that the general practitioner has enough knowledge of ophthalmology to equip him at least for giving first aid in eye cases.

Social workers in Latin America are possibly more essential to any program of sight conservation than in this country, as in the southern countries, more often than not, it is not enough to give the patient a medical or therapeutic prescription and leave the use of it to his judgment. In most cases, there are difficulties which must be overcome; moreover, the patient will have to be enlightened on the seriousness of his predicament and on the necessity for treatment.

It is quite important, too, that ophthalmologists, general practitioners, nurses, and social workers located in inaccessible regions be provided with information on the recent advances of ophthalmology in particular and medicine in general. Apparently, advantage is not being taken of technical means now at our disposal for the communication of ideas. The methods used nowadays are to a large extent those used fifty years ago, horse and buggy methods, as it were, as compared with streamlined means of conveyance at our service. New

ideas, concepts, methods of treatment and prevention take considerable time to find their way into the medical journals and even longer to reach the abstract journals which are accessible to the majority. Something ought to be done in order to ensure access for everyone to the more recent developments of science in all its forms. Possibly radio, microfilm or simple abstracts sent by airmail or some similar means could be considered for solving this question of great relevance in preventive medicine. Especially in Latin America, where in some instances doctors have unsurpassable difficulties in congregating for scientific pursuits, this means of keeping them up to date would be of unquestionable value and would probably prove to be one of the important items for the success of preventive ophthalmology.

There are not more than one thousand ophthalmologists scattered over the whole area of Latin America to give their services to a population of some one hundred twenty million people. This number, small in itself, is relatively still smaller when the difficulties in transportation have to be taken into consideration. The improvement of facilities for training good eye specialists or for imparting good ophthalmologic knowledge to general practitioners is highly important. As a step in that direction, the Pan American Congress of Ophthalmology has been able to secure 25 fellowships for Latin American ophthalmologists every year to do post-graduate work in the best institutions of the United States and is endeavoring to secure the establishment of "Boards," similar to the American Board of Ophthalmology, in the different Latin American countries. It can be anticipated that these boards will have the same stimulating influence in raising the general standards of ophthalmology in the southern countries as they had in North America. Both the translation and adaptation of text books used in the United States into Spanish and Portuguese with the aid of the professors of ophthalmology of the Latin American countries and the increasing cultural exchange between ophthalmologists north and south of the Rio Grande, will aid in improvement of the facilities for treating eye cases.

7. Measures to give more comfort and efficiency in the use of the eyes, such as improved lighting, special classes for partially sighted children (to which I should like to add routine examination of all workmen in order to ensure better vision through adequate optical correction and possible rehabilitation through the improvement of remediable conditions).

8. Legal provisions which directly or indirectly make mandatory the desirable measures just advocated.

At a meeting held last July, Latin American ophthalmologists recommended a series of measures which can all be fitted into the program outlined above.

The problem of sight conservation, as we all know, can be divided into many aspects which may be covered by different bodies or organizations. Even if all these organizations did already exist and work satisfactorily, it is essential that in each country an agency of some kind act as a catalyst in order to stimulate and co-ordinate all the efforts made for the same purpose and make them more efficient. These agencies will be either governmental or private institutions, but they should all make use of the experience of other agencies already established. It is my suggestion that the National Society for the Prevention of Blindness prepare an outline for a basic sight conservation program based on its previous experience, to be translated into Spanish and Portuguese and to be released for publication first in the ophthalmological and medical papers, and then in less technical language in all the newspapers and magazines in Latin America.

The aim of such a special co-ordinating prevention of blindness agency should be to give guidance to all kinds of individuals or groups interested in the problem of sight conservation. Through research and field work, and through a specialized library, it should gather information on the nature and extent of the problems and new developments for their solution. Furthermore, it should co-ordinate all the existing efforts, and fill in the possible gaps. The preparation of medical social workers specializing in ophthalmology, of teachers for sight-saving classes, of executives for prevention of blindness work, is equally important and should be the task of these agencies, which would keep in constant touch with each other in order to exchange viewpoints and the results of their respective experience.

It should be borne in mind that the Western Hemisphere extends from the arctic cold climate, through temperate zones of Canada, the United States and northern Mexico, through the subtropical and tropical sections of Central America and the northern part of

South America, to the temperate zones of southern Brazil, Argentina, Uruguay and Chile, and again to the sub-arctic climate of Patagonia. High chains of mountains, plateaus of different altitudes, lakes, large rivers, prairies, savannahs, deserts, provide all sorts of variations, and people of very different races inhabit these regions. If standardized methods of investigation can be used throughout this composite cross section of the earth, invaluable data will be gathered which will enable the generations to come to make great strides in the progress of medicine in all its aspects and provide unlimited possibilities for the well-being of man.

This war, in spite of all its evils, is paving the way for a better understanding between the peoples of the Americas, and it is to be expected that the challenge presented to medicine on this continent today will be met by a mobilization of all the sciences without precedent in man's age-long fight against disease. America today takes the leadership in this movement, but it is to be hoped that in the future the burden will be equally divided and that a full and an evenly allotted co-operation of each and every one of the twenty-two nations of this hemisphere will be established.

Industrial Eye Efficiency in the War Program

Charles P. Tolman

STUDY of eye safety practices and eye efficiency in fifty industrial plants.

EXPANSION of industry and acceleration of production of war materials have placed a heavy responsibility on the eyes as well as on industry. Visual efficiency is of utmost importance in the war effort, both from the point of view of speeding up production and of avoiding accidents. In order to learn the extent of safe practices as they relate to eyesight in typical plants, the National Society for the Prevention of Blindness undertook a survey of industrial plants based on response to a questionnaire and interviews.

Extent of Study

The study covered fifty plants with a total of 166,862 workers. The plants which were surveyed employed from 12 to over 25,000 workers. Twenty-two plants had more than 1,500 employees, 10 plants had from 500 to 1,500 employees, and 18 less than 500. Small industries have not, as a rule, followed safe practices in their plants to the extent that such practices are followed in the larger plants. For this reason, small as well as large plants were included in the survey.

The limited budget available for this survey made it essential to plan the inquiry along lines which would give the most reliable information from the plants which could be visited or otherwise checked. Accordingly, the questionnaire which is reproduced herewith will be found to contain items of general safety interest, as well as those directly relating to the protection and best utilization of eyesight in industry. In addition to the "yes" and "no" answers, the replies are further qualified to amplify the picture.

INDUSTRIAL EYESIGHT PROTECTION SURVEY—APPRAISAL FORM

THE ADMINISTRATIVE PROGRAM AND PRACTICE

IN THE PLANT AS A WHOLE REGARDING EYE SAFETY—PAGE 1

Name of concern: _____

Address: _____

Date: _____

No. _____

Executive in charge of safety: _____

Principal products: _____

This workroom: Product: _____

Total employees: _____

Total employees: _____

Administrative program:	Yes	No	Remarks
<div> <div>1. Safety program</div> <div>2. Ophthalmic supervision</div> <div>3. Medical supervision</div> <div>4. Industrial nursing</div> <div>5. Safety supervision</div> <div>6. Safety committee—Membership</div> <div>7. Education of workers</div> <div>8. Education of foremen</div> <div>9. Enforcement of rules</div> <div>10. First aid personnel</div> <div>11. First aid facilities</div> <div>12. Examination for occupational vision</div> <div>13. Job analysis for occupational vision</div> <div>14. Prescription lenses for occupational vision</div> <div>15. Study causes of injuries</div> <div>16. Records of injuries</div> <div>17. Use made of records of injuries</div> <div>18. Periodic eye examination</div> <div>Protective equipment: (Is:)</div> <div>20. Every worker individually supplied?</div> <div>21. Equipment fitted to worker?</div> <div>22. Individual equipment regularly sterilized?</div> <div>23. Equipment used in common?</div> <div>24. Equipment sterilized before reissue?</div> <div>25. Equipment properly maintained?</div> <div>26. Storage space provided for individual equipment?</div> </div>			<div> <div>Complete Regular By reference Name</div> <div>Regular By reference Name</div> <div>Plant service Home service</div> <div>Full-time supervisor Part-time supervisor Foremen</div> <div>Rotating Company Mixed Workmen</div> <div>Bulletins Pay envelope Talks Job training</div> <div>Bulletins Pay envelope Talks Training course</div> <div>Warning Discipline Committee action Discharge</div> <div>Doctor Professionally trained R.C. or B.M. trained</div> <div>Kit Hospital room Eye fountains Showers</div> <div>Snellen chart Telebinocular Ophthalmologist</div> <div>Cooperation of ophthalmologist</div> <div>Provided by company By company assistance Required of workers</div> <div>Safety supervisor Safety committee Management</div> <div>Eye tests of principals Foot-candle test of locale</div> <div>Statistics Prevent recurrence Improve operation</div> <div>General Workers subject to special exposure</div> <div>By foreman By safety man By doctor</div> <div>What periods</div> <div>Goggles Special equipment, such as oxygen breathing</div> <div>Periodic reconditioning Local cleaning kit Casual</div> </div>

FIGURE I.—APPRAISAL FORM

Note to Industrial Executives.—Copies of the Appraisal Form used in the survey are available upon request. A report from the personnel department can be made in less than ten minutes by checking the form. The executive or manager can see at a glance whether eyesight is being protected and whether there is room for increasing his production and reducing spoilage by further improvement in the visual conditions in the plant. Write for suggestions and information to the National Society for the Prevention of Blindness, Inc., 1790 Broadway, New York, N. Y.

General Safety Provisions

The study revealed that practically all plants carry out nearly all of the general safety procedures, such as providing first aid facilities (100 per cent); having definite safety programs and definite policies for the enforcement of safety rules (98 per cent); employing safety supervisors, full time or part time, according to the size of the plant (94 per cent). While the study took into consideration general safety procedures, it was mainly concerned with the protection of eyesight and the part played by good eyesight in speeding up production.

Industrial Eyesight Supervision

Under this heading are considered those factors having an immediate bearing upon production, reduction of spoilage, utilization of workers with subnormal vision and workers with "old sight."

Despite the fact that front rank companies provide good general safety facilities, they, for the most part, appear to be unaware of the importance of eyesight in industry as a managerial responsibility.

Job Analysis for Industrial Visual Requirements with Cooperation of Ophthalmologist.—Job analysis for visual requirements is claimed as a practice by 24 per cent of the plants. Since only 10 per cent have the co-operation of an ophthalmologist, we may consider that only these give adequate attention to this very important subject. Seventy-six per cent of the plants make no study to determine what visual requirements are necessary or acceptable to qualify a worker for any particular job. This means that they do not know how many color-blind or one-eyed men, or men with subnormal but correctible vision can be utilized. On the

RESULTS OF INDUSTRIAL EYESIGHT PROTECTION SURVEY

Summary of Returns from Fifty Typical Plants Employing from 12 to 25,622 Workers—Total 166,682.
Note Deficiency of Eye Conservation Practices in Contrast to those of General Safety.

PLANTS FOLLOWING PRACTICES

PLANTS NEGLECTING SAFE PRACTICES



* Snellen Chart examination omitted

** As determined by plant

Each symbol represents 10% of all plants surveyed

National Society for the Prevention of Blindness, Inc.
1790 Broadway, New York City

FIGURE II

other hand, they may be employing men whose vision is a hazard on the particular job. For example, a man may be working as a crane operator who has deficient "depth perception," and so cannot judge the height and placement of the crane load. This would make him a menace to life and property, while if assigned to another job for which his eyesight is suited, he could carry on safely and effectively.

Visual Examination.—Visual examination is made by eye physicians in 10 per cent of the plants; 20 per cent more employ binocular instruments; this leaves 35 plants—70 per cent of the total—in which no test of employees' vision is made at all, or the test made is not adequate to determine the essential factors of industrial vision. For example, a Snellen chart alone will determine only the central vision of the worker for distant objects.

Periodic Eye Examination.—Periodic eye examination of workers who are especially exposed is reported by 14 per cent of the plants. Only 10 per cent of the plants report a general periodic examination of all workers. This is a serious oversight because some industrial eye injuries are cumulative—for example, those due to intense radiation as in welding and furnace work.

Prescription Lenses.—Prescription lenses, in this discussion, refer to those goggles provided with nonshatterable lenses which have been ground to compensate for the visual defect of the employee. Prescription lenses are provided for, or required of, the workers in 58 per cent of the plants. This leaves 42 per cent in which no attention is paid to this subject. Only 34 per cent of the plants provide prescription lenses at company expense, and, in most of these, provision is made only for workers who are required to wear goggles. The opportunity to raise productive efficiency of others who need eye correction is lost.

Vision of Workers and Illumination Included in Accident Reports.—According to informed opinion, about one-fifth of general accidents result from bad "seeing" conditions, whether subnormal vision, deficient lighting, or glare. It might be expected, therefore, to find these items included in accident reports. However, only 22 per cent of the plants report the eye condition of the persons involved, and only 12 per cent mention the illumination at scene of the accident. The lack of these data suggests that a much greater

percentage of general accidents may be caused by bad eyesight or poor illumination, or both, than is generally supposed.

Vision for Victory.—The average plant investment per worker in machine industries is about \$6,000. Most employers agree that, according to the nature of the work, from two weeks to two months is required before a new employee is capable of working at standard performance. Why then should there be any hesitancy in making an adequate examination at the cost of a few dollars to make sure that the new employee is being trained on that job at which he can work to the best advantage of all concerned?

Much more might be said of all of the items in this section, but the importance of eye conservation as a factor for maximum production of war materials may be epitomized by the statement that a substantial increase in production may be realized through an adequate program for eye conservation and illumination—this in addition to the humane results of preventing loss of sight or injury to the eyes.

Goggles and Other Personal Protective Equipment

According to the experience of Dr. Albert C. Snell of Rochester, New York, in his private practice, 90 per cent of eye accidents have occurred while goggles were not being used. Mr. Harry Guilbert, Director of the Bureau of Safety and Compensation, the Pullman Company, indicated that the total loss of use of one eye costs industry \$12,000. Both of these figures are in line with conservative estimates of other authorities. In fact, most authorities agree that at least 95 per cent of injuries to the eye can be completely prevented simply by wearing suitable protective equipment. In a very large majority of instances, such equipment is merely a pair of industrial safety glasses. Much complaint has been heard on the part of management that workers refuse to wear the goggles provided. Before we blame the men too much, let us look at the failure on the part of management in some of the front rank companies.

Goggles Supplied to Every Exposed Worker.—Eighty per cent of the plants claim to supply goggles to workers whom they consider "exposed." This figure is doubtless in excess of the fact, because some exposures are frequently not recognized. For ex-

ample, some front rank plants do not consider that a lathe operator is exposed to eye injuries!

Goggles Fitted to Worker.—Only 70 per cent of the plants fit the equipment for the comfort of the worker, although safety men agree that this is essential to gain co-operation from the workers in the wearing of protective equipment. In 30 per cent of the plants, no attempt of any kind was made to fit the goggles or other equipment to the worker. That means that neither the plant doctor, the safety man, nor the foreman paid any attention to this feature.

Sterilization and Reconditioning of Goggles.—In many plants goggles are turned in and re-issued, and we find that more than a third failed to sterilize the goggles before issuing them to be worn by another workman. Does it not appear that these failures to follow the practices of common sense and ordinary hygiene may account, in large measure, for the difficulty in getting 100 per cent effectiveness in the "goggle" program?

Recommendations

Obviously, industrial concerns need to give much more attention to the subject of industrial vision, not only for humane reasons, but to increase production, to reduce spoilage and to add manpower—by providing prescription lenses to correct subnormal vision so that workers may be usefully employed in the war effort who would not otherwise be available.

On the basis of the findings of this study of 50 plants which may be considered a sampling, the following practices for industrial plants are recommended:

1. Provision for job analysis for industrial requirements, with co-operation of ophthalmologist.
2. Provision for routine visual examinations which are sufficiently complete to find all defects in visual function at working distance, visual acuity, depth perception, peripheral vision, and color vision under supervision of ophthalmologist.
3. Provision for periodic eye examination of all employees—especially those exposed to eye dangers, those involved in accidents, or those reported for spoilage of materials.

4. Provision for prescription lenses, when needed, either for safety or efficiency, or both.
5. Records of accidents to include notation of visual efficiency of principals involved and status of illumination at scene of accident.
6. Provision of goggles, fitted to the individual employee.
7. Sterilization of goggles before re-issuing.
8. Periodic re-conditioning of goggles or other eye safety equipment.

Apropos of Glaucoma—What Happened to Two Patients*

Mark J. Schoenberg, M.D.

THE story of two patients who did not heed warning symptoms.

YEAR after year, in endless procession, patients with histories like those I am about to tell come to the consulting room of the troubled eye specialist. "Too late" are the words he must say so often that he dreads having to speak. How can he be satisfied merely in trying to do his best for these people, when he knows that what might have averted the catastrophe was forewarning—getting the people to realize the importance of recognizing the early symptoms of glaucoma. These patients should have been given courage to overcome inhibitions and consult at once a well-trained eye physician on the appearance of danger signals.

What are these inhibitions that keep sufferers in the early stages of glaucoma from seeking medical advice? As patients report them, there is the fear of making much of little, of appearing (to others or to one's self) cowardly or neurotic. There is the ever-present tendency to put off till tomorrow, to wait to see if the trouble will pass. There is the conflicting advice of friends—to "forget it," to wait, to consult a second specialist before the first one has had a chance to clear up the problem. For some temperaments, it is hard to make quick, clear-cut decisions. But this is one situation in which he who hesitates may be lost. The only safe course of action is to go at once to a reputable eye physician, tell him all your symptoms and the possible danger they may have suggested to you.

Too few persons appreciate the seriousness of glaucoma. Perhaps this is why so few are prepared to checkmate its worst effects. Miss

* Reprinted, with permission, from *The Trained Nurse and Hospital Review*, October, 1942.

Theresa Dear,* a gifted writer who is herself a patient suffering from glaucoma, knows it now for what it is: "A cruel, blinding eye disease which never forgives nor forgets . . . unless—" The end of that sentence, of course, is, "unless it is detected in time and properly checked." And detection, of course, depends on knowledge of symptoms. By the time the attentive reader reaches the last page of this article, those symptoms will be clearly impressed on his mind.

Let me tell you two stories that typify the experience of countless glaucoma sufferers. The first is about a woman who tried to be her own doctor, with results which you will read below.

The Story of Mrs. Masie Brooks

Mrs. Masie Brooks,* by choice a housewife and mother, was forty-eight years old when her eye trouble began. She was a modest person, short, stocky, nervous, easily upset and of a worrisome disposition. She had always been well enough not to require a physician's attention. During the past eight months she had been going through menopausal difficulties of moderate intensity. One night she was awakened by a violent headache and nausea; shortly after, she vomited. Her right eye was very sore and on looking into the mirror she was frightened at its redness and bulging. It seemed as if a little Satan were hammering at the eye with the steadiness of a never-ending mischief. The sight was "as good as gone" and the electric light appeared surrounded by a mist or halo with rainbow-tinted rings around it. Her husband remarked that her eye looked glassy and the pupil was wide. But he tried to pacify her. "It's all from an upset stomach," he suggested. The patient was rather inclined to believe that the radio news she had listened to just before retiring had upset her too much.

Aspirin and an enema relieved the intense suffering somewhat, but the sight remained almost completely snuffed out. The old habit of waiting for Nature to take care of upsets of this kind was religiously adhered to and a more rational procedure, such as consulting an eye physician, was postponed. Two weeks later, she finally went to the specialist. His gentle scolding, "*You have waited too long,*" came as a hard blow.

The trouble was not due to an upset stomach; it was an attack of acute glaucoma. The eye was already badly damaged. It was doubtful, said the eye surgeon, whether the sight could be restored by an operation.

* Name fictitious.

This is, in main outline, a story which repeats itself many times every day throughout this land. The tragic outcomes of most of these cases are due to delay; and delay is permitted through failure to recognize major signs and symptoms.

Symptoms of Acute Glaucoma

The symptoms of glaucoma are: Sudden onset of the attack; severe pain in the head; nausea and vomiting; congestion of the eye; enlargement of the pupil; and clouding of vision—seeing a mist or a halo of rainbow-colored rings around lights.

Glaucoma attacks may be extremely violent, or moderate, or even mild. Some of the symptoms may not be present at all, but a combination of a few of them, such as cloudy vision, seeing rings around lights, and pain, is sufficient to make the presence of glaucoma quite probable. In such a case, urging the patient to seek the advice of an *eye physician* is imperative and obligatory. (Never be hasty in making a definite statement concerning the presence or absence of glaucoma, especially on the strength of one single symptom. Leave the diagnosis to the eye physician.)

The acute attack of glaucoma is usually so painful that the average patient cannot stand the agonizing suffering. A doctor, usually the family physician, is consulted as soon as possible. If he has ever seen a case of acute glaucoma, he will see to it that an eye physician takes over the case immediately. An operation is to be performed within 48 hours after the onset of the attack. The patient may think one day more or less won't matter. But, actually, when an operation for acute glaucoma is to be performed, *one* hour more or less may decide whether the eye affected shall see again or remain permanently blind.

Nature is not always merciful; she does not always turn on a flood of warning signals to inform us of approaching danger. In acute glaucoma, she gives us a jolt by sending us insistent and loud messages, such as excruciating pain and loss of sight, which are compelling enough to awaken the most inert among us. However, there is another type of glaucoma, the so-called "simple glaucoma," in which the warnings of approaching danger are so faint and vague that they are usually ignored or overlooked even by very observant

persons. In this type, the eye does not become congested and is rarely painful.

Let us see what happened to our other patient.

The Story of Judge Myron Pull

Judge Myron Pull,* a distinguished lawyer, age fifty-four, tall, blond, heavy and tense, erect and dignified, states that the reading glasses prescribed by a colleague a few months and again a few weeks ago, did not give him the usual reading comfort. "In fact," he said, "my eyes blur and ache sometimes, even when I do not read." To questions about his general health, he answered emphatically: "I have been well all my life. For years my physician, who has given me yearly medical examinations, has never found anything the matter with me." Suppressing a smile and slightly bored by my insistence on asking questions regarded as superfluous by the average layman, he reminded me that all he needed was just a "*good* pair of glasses." Pointing to a pile of spectacles he had brought along he repeated, "My own eye doctor is an excellent man, but this time he fell down on the job."

An exhaustive questioning and routine examination gradually yielded, one by one, a number of data pointing to the fact that our man was suffering from simple glaucoma. His eyes showed the usual damage caused by increased pressure and other disturbances within the eye:

The head of each optic nerve was pale, degenerated.

The pupils were slightly dilated and reacted poorly to light.

The measurement of the degree of hardness of the eyeballs by a method called tonometry revealed that it had risen above normal by 30 per cent.

One of the important methods of examination of the functions of the eye is the investigation of its ability to see clearly, in the various parts of the space surrounding it, colors and objects of a certain size and under a certain degree of illumination. This surrounding space visible to an eye constitutes the field of vision of that eye. If the extent of the field of vision is reduced, or if blind areas are discovered in which small objects are not seen at all, then we are dealing with a serious condition which has to be carefully considered. In glaucoma the examination of the fields of vision very frequently reveals characteristic defects. The investigation of this patient's fields of vision showed the presence of such defects and blind areas.

In the course of the tedious and somewhat lengthy examination, a number of other data were obtained confirming the original sus-

* Name fictitious.

picion concerning the nature of the disease. The data, however, are too technical to be mentioned in this paper.

"One more question, Judge, before I am ready to tell you all I know about your trouble. Did you go to the movies recently?"

"Yes, last night."

"Did you notice any particular reactions in your eyes while you were at the movie, or after you left it?"

"Well—yes, as a matter of fact I did. I began to have a splitting headache after being in the theater about one hour. It was around 10:30 when my wife and I left the movie theater. As we reached the street, it seemed to me that there was a dense fog and that colored halos were around the electric lights. When I mentioned this to Mrs. Pull, she looked at me in surprise and said, 'You can't be serious! Maybe this is the effect of that extra cocktail before dinner.' When I told her this was no delusion, she assured me that I was suffering from 'imaginitis' and we let the matter rest there. However, I do think something ought to be done about these glasses."

When we reached the end of the investigation, Judge Pull was quite amazed to learn that his reading difficulties were not due to the glasses and that his trouble was simple glaucoma. "Simple?" He seized on the word. "Thank the Lord that it is only 'simple.'" It took time to explain that the term "simple," with its optimistic overtones, is quite deceiving; perhaps "latent" (noncongestive) as opposed to "acute" (congestive) might be a more appropriate word. Since in simple glaucoma many patients are unaware of their impending or actual loss of sight for a considerable length of time, it is justifiable to consider this type the more malignant of the two.

In Judge Pull's case, however, as in many others, we find warnings which, although not very spectacular, are of grave significance. It is important that the public in general should understand the meaning of such symptoms. Thus, in Judge Pull's case we find the following warnings:

Symptoms of Simple Glaucoma

Difficulty in reading even for a short time, followed by a sense of discomfort or pain. Glasses are ineffectual in such cases.

Occasional blurring of sight in one or both eyes.

Seeing a mist or halo with rainbow-colored rings around distant lights, especially after a stay of one or more hours in the dark.

The defects in our patient's fields of vision were so extensive and so near to that area providing central vision, that the poor man

was constantly in danger of losing his sight entirely. Under such conditions, in which the optic nerves were in a fairly advanced stage of degeneration, all that treatment could hope to attain would be perhaps to save some of his sight—perhaps! This patient also arrived too late. If he had paid attention to his initial symptoms before the tissues of the eyes were damaged, he would have had a better chance.

What is Glaucoma?

What is happening, what is going on in eyes affected with glaucoma? Patients and their relatives keep on asking this question. The more they understand about the gravity of this disease, the easier it is to obtain their co-operation.

Glaucoma affects various tissues of the eyes, and most probably those of other parts of the body, and hence disturbs their normal functions. The characteristic changes in the eye are:

1. The eyeballs become harder than is good for them.
2. The circulation of the blood and of other fluids within the eyeball is interfered with.
3. The free drainage of the fluid from the eye is slowed down or even completely blocked, and the toxic substances, produced in the course of the normal chemical processes in the ocular tissues, find no free outflow. These toxic substances which are tardy in being eliminated have a damaging effect upon the ocular tissues.
4. The increase of pressure within the eye (hardening of the eyeball), in addition to the presence of toxic substances, chokes and impairs the health of the blood-vessels, reduces the supply of food material and oxygen to the retina and the optic nerves, causes degeneration of the tissues, especially of the optic nerves. The effect of this degenerative process is progressive diminution of peripheral and pericentral vision. The final result is diminution or total loss of vision.

Facts You Should Know About Glaucoma

For a deeper insight into the problems of glaucoma, consider the following major facts about this sight-killer:

Glaucoma is a disease localized, as far as we know, mainly in the eyes. The French eye physicians justly say: "A patient

with glaucoma has a sick eye in a sick body." Glaucoma may be of various degrees and varieties.

Who gets glaucoma? Any one of us may be predisposed to the disease. Every person over forty or even younger should have a yearly eye examination.

If it is discovered or treated too late, glaucoma almost invariably ends in complete blindness. At the present time there are many cases of glaucoma which have not been recognized and treated soon enough, and have resulted in blindness.

There are in this country more than 20,000 people permanently blind from glaucoma and at least 100,000 who have lost the sight in one eye from this same cause. In at least one-third of these patients, blindness could have been prevented.

Medical practitioners, public health officers, social workers, nurses, members of the staff of agencies interested in prevention of blindness and, above all, eye physicians should be actively engaged in the search for and detection of early cases of glaucoma.

All those who are interested in prevention of blindness, particularly the glaucoma patients themselves, must be made to understand that the initial treatment is only one step in the process of saving sight. Good results can be obtained only by *constant* watchfulness and expert treatment. They should never forget the penalty which will follow irregular attendance and half-hearted co-operation and that penalty is blindness.

A Year of Sight Conservation Work in Wartime^{*}

Eleanor Brown Merrill

POINTING out the Society's activities in relation to the war effort, the author discusses public and professional education, glaucoma, industry, medical social work and state programs for conservation of vision.

IT IS a pleasure at this Annual Meeting of the National Society for the Prevention of Blindness to report to our members and friends on progress in the last year. At best, one can give in the time allotted but a bird's-eye view of the Society's activities. That we are able to show accomplishment is due not only to the continued financial support so encouraging to us all, but also to the wholehearted co-operation of those who, throughout the country, are joining in the movement to prevent blindness and save sight.

Naturally, a question in the minds of all at this time is in what ways a program of this nature is related to conduct of the war. In connection with the prevention of blindness, it seems particularly true that the present emergency has not created new problems but, rather, accentuated those already in existence. In this brief statement emphasis is put upon those aspects of the work that have been especially intensified during the past year.

Public and Professional Education

Exhibits at various national conferences have been built specifically around the subject of eye health and efficiency under war conditions. Notable among the conferences, at which the staff gave consultant service, were the meetings of the American Medical Association, the American Academy of Ophthalmology and

^{*} Report given at the Annual Meeting of the National Society for the Prevention of Blindness, December 3, 1942.

Otolaryngology, the National Conference of Social Work, and the National Safety Congress. These meetings, as well as others of a more local nature, for which display and pamphlet material was provided, resulted in many requests for publications and for guidance in formulating educational programs.

Similarly, public warnings and advice about eye care have been released through the press and the radio, the services of co-operating ophthalmologists being utilized in preparation of radio talks as well as of papers later published in and reprinted from *THE SIGHT-SAVING REVIEW*. The radio is felt, particularly at this time, to be a powerful medium for public education; it is proposed from the 1943 budget to prepare a new, dramatic electrical transcription which will broadcast pertinent messages throughout the United States.

In an arrangement with the American Red Cross, pamphlets have been supplied at cost for use in home-nursing instruction. There has been widespread demand from the local chapters for such material, and for additional advice; in consequence, it has been considered advisable to prepare a special brochure for the purpose, carrying instruction on eye care that it is anticipated will reach through this avenue into many homes in all parts of the United States.

A request from the chief medical officer of an army hospital for data on the preventive aspect of military injuries to the eyes is typical of inquiries received from various arms of the government calling not only for the provision of appropriate pamphlets, but also for individual study and the assembling of reference material. In this connection, mention is made of the outbreak of an epidemic of keratoconjunctivitis extending from the West Coast shipyards into some of the other industrial centers, and of the Society's release of precautionary recommendations to the National Safety Council and to state and territorial health officers.

"I never thought carrots would help me to locate a German submarine," said a patient in the Seamen's Church Institute eye clinic, when learning of the nutritional value of this vegetable in relation to seeing. This may sound extraneous, but it suggests the unusual chance we have now to impress on persons in every walk of life the principles of eye health and conservation.

Worth noting is the series of four two-hour lecture and discussion periods given by the staff this fall for graduates in ophthalmology at New York University College of Medicine. It is wished that such opportunity for reaching newly prepared eye physicians with basic ideas in regard to prevention of blindness could be extended to other medical teaching centers.

It is beyond expectation that the Society alone could, even under the most favorable circumstances, conduct an educational program that would be complete. Rather its function is to blaze the way and stimulate others to carry into their localities the accepted recommendations and advice. To this end, instruction for responsible personnel working under other auspices has remained a part of the program. Institutes for public health nursing supervisors have been continued, though on a somewhat decreased scale because of travel restriction. Preceding the American Public Health Association convention in St. Louis, an institute was given especially for health personnel, in which we were fortunate in having assistance from some of the local leaders.

Last summer, courses for sight-saving class teachers were offered at Teachers College, Columbia University, New York; Wayne University, Detroit; and George Peabody College for Teachers, Nashville, with sponsorship of the Society and service from the Director Emeritus and others of the staff. The course at Peabody College was given under the full-time direction of the Associate Director.

In recent months the Society has participated in several conferences called to consider problems relating to the rehabilitation of those rejected for military service and, as it may become necessary, of men injured through military and industrial service. Though a general program of rehabilitation for these groups is still in the embryonic stage, it is apparent that the Government will assume direct responsibility and that it will look to the national volunteer agencies for guidance available as a result of study and experience in the specialized fields. Material has already been provided from this office.

To summarize briefly some of the activities which might be characterized as routine procedures of the Society: in the past year exhibits were provided to 88 communities throughout the country;

films were loaned on short-time or indefinite basis on 112 occasions; the talking-slide-film on industrial accidents was sent to 207 localities; 700 electrical transcriptions were broadcast over approximately 350 radio stations distributed throughout the United States; and individuals and agencies in 317 cities in 47 states and the District of Columbia were reached with 296,000 publications shipped from the Society's office.

Glaucoma

It has been interesting to find in minutes of the Society dated May 3, 1916, a note to the effect that Dr. Haven Emerson, then New York City Health Commissioner, had asked for an authoritative statement about glaucoma, and suggested warnings of its oncoming. Nothing was given him, apparently, no doubt because of uncertainty as to what such pronouncements should contain, but we have gone a long way since those days, both in learning the possibility of control and in educational technique. The present emphasis on glaucoma is, therefore, not seen as a new need, but it *is* recognized as especially important now when ophthalmologists and others foresee steady increase in the incidence of this disease because of additional worry and emotional strain due to the war. For this reason, the Society has urged, in writing, in conference, and through the press, the value of early medical care and control measures. A statement carrying wartime rules for glaucoma patients has been released; articles calling attention to current developments and findings have been circulated.

The New York City project under sponsorship of the Committee on Glaucoma has progressed. In recent months attention has been given to recruiting and training volunteers to act as technical and clerical assistants. In a course of eighteen lectures which were generously presented by co-operating ophthalmologists, five young women were prepared for service in five eye clinics, thus freeing the overburdened ophthalmologists from some of the technical details involved in eye examinations. Other volunteers are being recruited for training and similar assignment through hospital departments. It is expected that in the next few months a plan may be demonstrated locally which will prove valuable for general recommendation.

Industry

With the great speed-up in industrial activity, the problem of eye accidents is one of immediate concern, and the Society has intensified this aspect of its work, under the supervision of its Industrial Advisory Committee, and has added to its staff the service of a consulting engineer. A study of safety procedures in fifty selected war industries has provided facts on the inadequacy of eye protection; these facts have served as the basis of material distributed in the form of a "Note to Industrial Executives," and other educational media. An increasing number of groups, such as safety councils, departments of labor, manufacturers, and local organizations for prevention of blindness are assuming responsibility not only for carrying further the efforts already started, but also for developing additional joint action leading to improved plant conditions. A pamphlet addressed specifically to women in industry is in preparation, in recognition of the fact that their employment on an increasing scale presents unique problems. Preparation has also been started of a pamphlet designed for the workman and his family.

In its industrial program, the Society is in close touch with the American Medical Association Committee on Industrial Hygiene. Dr. Hedwig S. Kuhn of that committee is a member of the Society's industrial advisory committee, and on request the Society has provided certain data on occupational disability and job classification both to Dr. Kuhn and to Dr. Snell, the American Medical Association industrial committee chairman. Material of this nature has been made available also to the U. S. Employment Service, through its New York branch. The data should be of further help in connection with plans developed by the Federal government or other agencies for the rehabilitation of visually handicapped but seeing persons.

Medical Social Work

The Society has continued close contact with the medical social eye workers trained during the past ten years who are now employed in hospital or community programs for prevention of blindness—about forty in all—and in a way these workers may be considered emissaries of the Society. Satisfactory progress is also

noted in the two demonstrations under way at the University of Kansas and at St. Louis University, both of which end the first of July, 1943.

State Programs

There have been many requests for the Society's assistance in planning state prevention programs, and a number of states have had visits from a staff member, who spent some time in each state in order to help in the classification and study of causes of blindness among applicants for aid-to-the-needy-blind, and to give general advisory service. However, so far as practicable in recent months, the Society has given such assistance in written communication, drawing up outlines for suggested activities in several states contemplating the organization of prevention of blindness services. A fairly comprehensive plan was developed on paper which will serve as a presentation of policies and procedures that can be adapted to the particular situation in any state.

The interest of Lions Clubs throughout the country is not being overlooked, and in a number of instances they are taking an influential part in promoting one or more phases of sight conservation work. An item recently presented to them for national promotion is the musical production of a little poem the Society has used successfully as an appeal, "A Great Gray Elephant," featuring rules for eye care.

Publications

Beginning in 1943, a periodic *Newsletter*, which will be offered to all who are engaged in any form of prevention of blindness, will report developments throughout the country. It is hoped that this will compensate, to some extent, for the lack of field visits during a period when traveling must be curtailed.

The Society is looking forward also to the publication by Columbia University Press, of "The Partially Seeing Child—Educational and Health Services in Urban and Rural Communities," by Winifred Hathaway. This volume is a revision and expansion of the Society's Publication No. 30, "Sight-Saving Classes—Organization and Administration."

It is a pleasure to report that THE SIGHT-SAVING REVIEW continues to make new friends. During the past six months there has been a greater increase in new subscribers than in any other comparable period. This more than makes up for the loss of subscribers who have had to drop their subscriptions for the duration, upon entry into military service.

Conclusion

In presenting a digest of the past twelve months, an attempt has been made to indicate the breadth of present activities and to give an idea of the methods employed in working toward our objective. It is heartening to all who join in this work to read messages like the following, quoted from a recent letter:

"Sometimes, working on such a job as has been settled on me, without any funds being appropriated, the thought comes into mind as to the futility of such effort—then agencies which really try to help, such as you have done, appear, and a person is given heart again. I suppose if just one accident is avoided, just one worker kept producing as a result of the work we are doing up here, we can consider our efforts well repaid."

The Parent's Responsibility in the Detection and Treatment of Crossed Eyes

Isadore Givner, M.D.

PRESENTS symptoms, description of treatment, and possibilities for cure of crossed eyes.

IN DISCUSSING crossed and walled eyes, one must first emphasize the fallacy of a rather common idea that such eyes straighten themselves if left alone. It is true that one sees patients with crossed eyes during their childhood and youth who as they age, lose this abnormality; but, the price of this so-called straightening has been at the terrific cost of the loss of vision of one eye. The deviating eye is less and less used, and its power of sight is reduced gradually to a point beyond the limits of serviceable vision. Since blind eyes frequently have a tendency to turn out, this tendency causes the crossed eye to assume a normal position, and the result is often a straight, normal appearance of an eye which actually has become blind.

In infancy, the eyes usually do not fix upon objects until six weeks after birth; the two eyes do not co-ordinate until the third month or later. After this the eyes should always appear straight either for near or for distant seeing. Because of the undeveloped bridge of the nose in the young child, the eyes sometimes have an appearance of being nearer together than they should be. That this is an illusion may be demonstrated by merely lifting the skin over the bridge of the nose.

Assuming that we have eyes with normal vision to start with, the most important factor in keeping the eyes straight is fusion, or the ability to use the two eyes together. Usually factors that influence this binocular vision bring about the condition of crossed eye. These factors may include refractive errors, congenital weak-

ness of extraocular muscles of the eyes, differences in the size of retinal images, or abnormal conditions in the brain centers governing inward-outward rotation of the eyes.

Refractive Errors

Since the mechanism of accommodation is allied to the inward rotation of the axes of the eyeballs (as in looking at a very near object), an overstimulation of the former in a very farsighted child might alter the muscular balance and throw the eye in toward the nose. Likewise, nearsighted individuals—because of the limited use of their accommodation, particularly for distant vision—might develop an out-turning of one or the other eye.

Congenital weakness of one or more of the muscles which rotate the eye, if the muscles affected are elevators or depressors, may cause one eye to have a tendency to be higher than the other; the constant overwork to keep the eyes even may eventually result in a giving up of the attempt to retain the single binocular vision with a resultant turning in or out of the eye. In a large series of cases reported recently, six per cent showed one elevator to be affected.

Difference in the Sizes of the Retinal Image

The difference in the sizes of the retinal image of the two eyes is a new phase of eye work that is only now being worked out for more practical application.

Abnormal Conditions in the Centers of the Brain

Abnormal conditions in the centers of the brain may affect the inward and outward rotation of the eyes. In this division of causative factors may be placed the cases following sleeping sickness in which, years later, because of damage done to these centers, individuals find themselves unable to roll their eyes slightly inward in order to fix upon a near object. Similarly, overstimulation of these brain centers leads to muscle imbalance and sometimes, consequently, crossed eye.

Signs of Eye Muscle Defects

The age at which many of the patients are first brought to the ophthalmologist is directly related to the keenness of observation

of the guardian or parent. The first evidence of trouble may be an occasional turning of the eye inward or outward that manifests itself only upon tiring of the body, use of the eyes, or acute illness; the appearance most of the time may be perfectly straight. It is at this stage that most correction of a non-surgical nature can be done.

One sign that should make a parent think of the possibility of an eye muscle defect is tilting of the head. Once an individual has developed a way of co-ordinating his two eyes so that a single image results, he will do everything he can to maintain this binocular vision. If some muscle is weak and therefore causes a separation of the images of the two eyes—or a tendency toward their separation—nature swings the head in that position which will more nearly fuse these images. This tilt may be to one or the other side. Sometimes a child will merely turn his head rather than tilt it. The reason for the unnatural position is the same in either case: the turning or tilting will bring the head into a position where the two images can be most successfully resolved into one. Sometimes, if the attempt is too exhausting, nature gives up and turns the head in the position where the images are farthest separated, hoping in this case to give up the fight and use the eyes singly, rather than binocularly.

The double vision that occurs before the attempt is given up will many times occasion intractable vomiting in the child, and if the symptom is not recognized as having its origin in the eye muscles, treatment will be unsuccessful.

An observing mother can many times give great help by her observation of the movements of her child's eyes, for the fear accompanying the first examination by the oculist may make a positive opinion impossible at the first sitting. Of course, in the three-year-old or older child, this aid in observation is not as necessary as in the baby.

Treatment of Crossed Eyes

The treatment of crossed eyes falls into the non-surgical and the surgical approach. In the former class, falls:

1. Correcting refractive errors in the cases where the crossed eye is precipitated by this cause. Glasses can be given to babies of eight months with satisfactory results.

2. Covering of the better-visioned eye by a patch to make the vision of the poorer eye improve by being used more, or
3. The instillation of atropine in the good eye in order to produce the same result.
4. Use of the cheiroscope (a device to develop co-ordination of the two eyes) to develop vision in the poorer eye.

When the vision is improved and fusion training is begun, the aid of the mother is most essential for stimulation of the child's interest, and through her ingenuity the training can be engaged in as a game rather than hard work.

In cases where surgery is indicated in spite of the above attempts, the work of fusion training in many cases is just as important as in the non-surgical cases, until the best degree of fusion, depth perception, is mastered and retained.

Summary

It cannot be too strongly impressed that a crossed eye will definitely make an average child feel that the way other people look at him must mean that he is inferior. To take care of the eyes before this state of mind develops is the ideal. However, many children who have already embraced this defensive attitude can still be brought back to normal thinking if their eyes are corrected before the introversion has become too fixed.

To sum up—the most important factor in keeping eyes working together is good vision. To straighten the eyes mechanically as is done by surgery is excellent as far as it goes, but is not the whole story. Stereoscopic fusion training is needed to keep the eyes straight from then on.

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request.

Glaucoma*

I have been asked to tell you the story of glaucoma. Now I ask you, how can such a highly technical story be told to you in such a way that you won't switch to another wavelength in less than two minutes from the start? It is just as bad as asking an aeronautical engineer to give you the technical details of the Pratt-Whitney engines that are used in the Boeing Flying Fortresses. Those marvelous machines (and this is not a commercial plug) undoubtedly play a role in your life today. But just how? So I shall try to tell you just how an equally technical affair may or does play a role in your life.

Glaucoma is a disease of the eyes, the cause of which has not yet been

discovered. Until the war diverted our activities, some of the best brains in the world were working on that problem and still are in the few odd minutes that can be snatched from the war efforts. When the cause is discovered, the cure will not be far behind.

Unless taken care of by medicine or surgery, glaucoma will cause complete blindness in nearly all cases. In fact, of the 120,000 people in the United States that are blind in both eyes, about 30,000 of them are blind as the result of glaucoma. Just stop for a minute and figure out what that means in hard cash. Every blind person without means is entitled to a blind pension of one dollar a day, every day in the year as long as he or she lives. Thirty thousand people at one dollar each day for the 365 days in the year adds up to almost 11,000,000 dollars a year that the taxpayer has to fork out. Why?

* Broadcast from Station WBBM over CBS, October 13, 1942, at American Academy of Ophthalmology & Oto-Laryngology Convention, and reprinted with permission from *Guildcraft*, October-November, 1942.

Because the disease was not discovered in time. Some figures, published this week, have shown that if glaucoma is discovered early and proper treatment started at once, less than 8 per cent of the eyes afflicted with glaucoma become blind. Does that mean anything? I should think that it means that everybody should try to find out whether or not they have or are in danger of having that trouble.

Now let's stop a minute and see if you belong in the group that ought to take stock of themselves. In the first place comes your age. If you are under thirty, you have my permission to switch over to a dance band. If you are under forty, it might be worth your while to listen a little longer for glaucoma is not unusual in that age group. But if you are over forty, and you don't need to tell how much over, it will pay you to think about your own eyes for a few minutes. If by chance you have glaucoma, you can save yourself many years of needless suffering, both mental and physical, by an early diagnosis and proper treatment.

It is more than silly to tell you what to look for and to try to help you to diagnose your own condition. In the campaign that this and other medical societies have waged to lessen the scourge of blindness from glaucoma, by early diagnosis, describing symptoms and telling you what to look for have resulted in more harm than good. Certain

people are so built that they can imagine unto themselves almost any symptom that they read of or hear about, and with the little knowledge that comes from such publicity, they develop mentally the finest case of this, that, or the other disease that you can imagine. That means that the doctor has to spend an infinite amount of time and care in ruling out the condition that these imaginative people think they have. And today with the armed forces using an ever-increasing number of medical men, the overworked doctor just hasn't the time to take care of imaginary ills. Consequently I am not going to tell you enough about glaucoma to lead you to think that you have it and thus make your overly busy eye physician waste a lot of his time to find out that you haven't and even more of his time in convincing you that you haven't.

If you are over forty, the chances are that you need, or will need in the very near future, glasses for reading, writing, and 'rithmetic, not to mention sewing and gin rummy. Only about 20 per cent of you are going to go to an eye physician to get your glasses fitted. When you do, his routine examination of your eyes will pick up a glaucoma if it is present, even in an early stage. The next 40 per cent of you will get your glasses fitted by an optometrist or an optician. Many of these non-medical refractionists are extremely skillful and can detect an early

glaucoma; but unfortunately, the majority cannot. The remaining 40 per cent of you are going to buy glasses over the counter. So you see, about 80 per cent of all the people past forty who get glasses do not have the benefit of an examination that would detect the presence or absence of that disease known as glaucoma.

However, practically all of you, except for a few foolish faddists, do consult your family doctor with more or less regularity. In addition to bringing your babies and helping you bring them up and taking care of the family aches and pains, both real and imaginary, he is oftentimes your counsellor in other than medical matters. For he knows you better than you know yourself. Furthermore, he pauperizes himself by trying to keep your family well and healthy by inoculations and vaccinations and warnings and quarantines against infectious diseases, and so forth and so on. Now there is being wished on him the additional job of trying to prevent his people from losing their sight from glaucoma.

In his days in medical school, your doctor learned about the commoner diseases of the eye and what he could do and what he could not do about them. But in the hurly-burly of a busy practice, he has not been able to keep in touch with the technical refinements that have developed in the various specialties, particularly that of diseases

of the eye. His patients have been given the benefit of those advances in knowledge by being referred through him to the various specialists, according to what was wrong with them. But now the eye specialists are going back to the family doctor and humbly asking his help to prevent the so unnecessary blindness from glaucoma by detecting that disease before it can do irreparable damage. And you, the patient of the family doctor, can be of enormous help to that cause.

You ask how? Simply by asking your doctor to make a cursory examination of your eyes as a part of his routine physical examination of your body. Tell him about the headaches you may have after being in the dark for some little length of time; ask him why you have so much trouble about finding a vacant seat at the movies, which means that you can't adapt your eyes to the dark as rapidly as do other people; tell him that your sight is not quite as sharp as it formerly was, and ask him to send you to an eye physician for examination; and ask him to feel with his fingertips through your closed eyelids whether your eyeball is harder than it should be. And finally, if he is accustomed to the use of an ophthalmoscope, ask him to look at your optic nerves and see if they show any trouble. If you have glaucoma already developed, he will discover it. If you are threatened with glaucoma (and there is such a condition as pre-glaucoma),

he will be suspicious and will send you to a specialist to confirm or refute his suspicions.

Let's suppose that you have glaucoma and that your family doctor has discovered the condition during the course of the routine examination that he makes of you every six or twelve months. What are you going to do about it? In the first place, have your doctor send you to a competent eye physician. Don't take the advice of a lady whom you happened to talk to on the bus on your way downtown and who told you of the perfectly marvelous cure for blindness that Doctor X performed on the second cousin of her grocer. If Doctor X is a good man, your doctor will know about him and send you there, if you so desire; if he doesn't know about this miracle worker, he will send you to a good man whom he does know. If you can, select a man who holds the certificate of the American Board of Ophthalmology, that certificate meaning that his fellow doctors recognize him as a competent eye physician.

Your eye physician will start by giving your eyes a thorough examination from front to back and inside and out. He will measure the amount of your vision and whether or not you need glasses; he will examine to see if your side vision has been affected and if so, how much; he will try to find out whether or not you have any blind spots in the central part of your sight; he

may measure to determine whether you see as well in the dark as you should; he will look inside your eye with a little electric light; and finally he will put a small instrument on your eye and measure the exact degree of pressure within the eye. All this may require several sittings. Only after he knows all there is to know about your eyes will he outline the course of treatment. Now, every case of glaucoma is a law unto itself and no two people respond exactly the same to the various medicines that are used. So it will take some little time for your eye physician to determine how your eyes react and just how much or how little treatment is required to hold the disease in check.

If you have glaucoma, you had better learn now than later that glaucoma cannot be cured, but can be arrested. In other words, the disease will always be with you and the least slip in treatment on your part means danger for the future of your eyes. Unfortunately, glaucoma is not like a stomachache, meaning that you can tell whether you have it or not, and only your eye physician can tell whether you or your glaucoma has the upper hand in the battle. So it is absolutely necessary that your eyes be examined thoroughly at such regular intervals as your eye physician may dictate.

If this talk has been the means of saving only one of you from blindness from glaucoma, then it has

been more than worth while. If it has made others of you think enough to ask your family doctor to see whether you are in danger of that disease, then it has paid big dividends. But if it has aroused enough of you to spread the gospel that the prevention of blindness from glau-

coma is possible by the early detection of glaucoma, then the American Academy of Ophthalmology and Oto-Laryngology will feel that its existence is justified.

—HARRY S. GRADLE, M.D.
Chicago, Ill.

News of State Activities

THIS section is devoted to the reporting of sight conservation activities carried on by official and voluntary agencies throughout the country. It presents information supplied by these groups, and serves as a medium for exchange of experiences. Only brief and timely items can be used, because of the limitations of space.

Illinois

"Here's a news item to warm your hearts! The W.P.A., working under our supervision and using all our tried and true methods, has tested the vision of 250,620 children this past year; of that number, 25,524 were found to have varying defects of vision, and within the last 12 months, 19,300 children have had their eye defects corrected. With a staff that was cut 50 per cent as of July 1, 1941, and another 50 per cent as of July 1, 1942, more children had their vision corrected than in any previous year.

"This year we were able to get something for this project which was always our fondest dream, and that was medical endorsement. The Eye Section of the Illinois Medical voted such approval in May. It was something like joining the church just before dying, as the W.P.A., which has contributed so much to prevention of blindness in this State, is suffering major slashes every day now.

"Perhaps in gratitude to them for their understanding and generosity we should review today what they have done for the eyes of the school children of Illinois in the past six years.

1,428,729 children have had their vision tested.

161,888 eye defects have been discovered.

72,107 children had their eye defects corrected.

"That is a powerful record in sight saving for the W.P.A. to bequeath to us, and we shall never cease to be grateful to them for the fire they have kindled. There has never been a moment in the past six years when they have failed to give our work every break possible within the framework of their rules, never a time when they have been anything but friendly to our suggestions, never an instance when they weren't as anxious as we to have the work of

the very highest quality. Their reward is really in the clear, straight eyes of little children of this State."

— *From the annual report of Illinois Society for the Prevention of Blindness, Chicago, Illinois.*

Kansas

"The Bureau of Services for the Blind, Kansas Department of Social Welfare, announces the coming to its staff of Miss Edith E. Gutzeit in the position of Medical Social Eye Consultant.

"Miss Gutzeit was graduated from Denison University, Granville, Ohio. She enrolled in the School of Applied Social Sciences at the University of Pittsburgh, and over a period of time took supervised field work and courses leading to an M. S. degree in Social Administration, which was awarded in June, 1941.

"Miss Gutzeit was employed as a case worker at the Mothers' Assistance Fund, Pittsburgh, Pennsylvania, for two years, following which she took the course in medical social eye work at Washington University sponsored by the National Society for the Prevention of Blindness. Upon completion of this course in June, 1938, she was employed as a Medical Social Eye Worker, first in the Pittsburgh branch and later in the Dauphin County branch of the Pennsylvania Association for the Blind. She was in charge of the Prevention of Blindness Department in the Dauphin County branch until she accepted her present position July 15, 1942.

"This Bureau feels fortunate in having Miss Gutzeit as a staff member and we are confident that she will perform effective work in the continuation and expansion of restoration of sight and prevention activities of this agency."

— *Services for the Blind, State Department of Social Welfare of Kansas, Topeka, Kansas*

Minnesota

A survey of visual health of school children in rural Hennepin County was initiated by the Minnesota Society for the Prevention of Blindness.

"Rural Hennepin County was selected to obtain this representative illustration. Since it was impossible to examine all the children in this large county, two methods were used:

1. Schools chosen were well distributed geographically and well balanced as to income groups.
2. A 'screening' examination was made by county health nurses in chosen schools.

"To get a cross-section of the whole county, one village school under the supervision of a school nurse was selected in addition to

the rural schools under the county nurses' supervision. Examinations have all been carried out at working centers in the schools.

"On the spring survey from April 8 to May 8, two doctors were assisted each day by a nurse and two local women. Histories of the visual difficulties were obtained from the children, parents, and teachers. Only children with vision of 20/25 or worse, and those with normal vision but having ocular symptoms, were referred for ophthalmological examination. Although the final summary will not be announced until the completion of the survey in October, a few facts may interest you.

"This survey has included 31 schools with a total enrollment of 4,443 children; 3,160 children were 'screened out' by county nurses as not requiring ophthalmological examinations.

(Percentage given on 4,443 children—total enrollment)

1,283 were found to require ophthalmological examinations (28.87%).

184 not examined, refused or preferred their own doctors (4.15%). (This percentage is surprisingly low; illustrates the excellent co-operation of PTA, county nurses and teachers.)

1,099 total number of children referred for examination (24.7%).

1,086 basic number—13 records discarded because of inaccuracies.

688 cases requiring immediate refraction or rechecking (15.77%).

561 advised immediate refraction (12.87%).

127 watching and rechecking in 6 to 12 months (2.9%).

46 with possible systemic rather than ocular difficulties (1.36%).

513 with normal vision, but with possible ocular difficulties and those examined by parents' request (11.48%).

344 of this group—no treatment advisable (7.68%).

169 refraction or other treatment advised (3.8%).

"A decided effort was made to provide treatment of all children examined and found in need of therapy. If the child's parents were financially able, the child was referred to his family physician for treatment or advice. If the family physician does not perform refractions the physician was provided with a list of ophthalmologists recognized by the Hennepin County Medical Society to whom he could refer these children. The ophthalmologists of Hennepin County agreed to make suitable financial arrangements in recommended cases in which finances were a problem. Children eligible for care at University Hospital or other charitable institutions were referred to them; if possible, arrangements were made by the school nurses to get the children to such facilities. If children were not

eligible and financial conditions inadequate, the PTA association in many cases assumed the financial responsibility for the care of the children, on a loan basis. . . .

"A 'follow-up' system was set up by the Hennepin County public health nurses, who made the excellent preparations for the survey, and who contributed much time and effort to its success. Each nurse has a copy of each recommendation made for children in her school district. They have offered to follow up each individual case and to see that the recommendations are carried out.

"A Summer Follow-Up Program was carried out by the Hopkins school nurse in June in the Hopkins, Harley-Hopkins and Glen Lake districts. (Other visits were made by county nurses.)

283 home visits—which included 372 children referred for further examination.

196 were referred for further care immediately, or before school next fall.

176 were found not to need refraction at the present time.

95 who were examined are already wearing glasses.

43 of this group were well fitted.

28 had been fitted by oculists—15 had been fitted by optometrists.

52 should be refracted again this summer.

11 children have already been fitted as advised by the survey.

4 fitted by oculists—7 fitted by optometrists.

5 families were given the privilege of borrowing from the school loan fund.

Final reports will be made in the fall giving an account of the results of the survey in this district and recommendations which will include plans of the family for care, cost of the care and the relief of symptoms. . . ."

—*Minnesota Society for the Prevention of Blindness and Conservation of Vision, St. Paul, Minnesota*

North Carolina

"*Mecklenburg Association Utilizes Community Resources in the Prevention of Blindness Program.*—In a city and county as large as Charlotte and Mecklenburg, and with a well-organized social welfare program, there is an essential need for organized clinics of all types. From the beginning of the Association for the Blind, it has used the method of calling directly on local ophthalmologists to service the cases in their offices. In the beginning this system worked very well, and the doctors co-operated to the fullest extent; but as the prevention work became more organized, and there was a better community understanding of eye care and eye health, the

need was too great for private ophthalmologists to handle in their offices. These men saw the need and were willing to help with any plan that would take care of this problem.

"This need was called to the attention of a board member of the Variety Club of Charlotte. This board member had served as a Board Member for the Association for the Blind for many years. He well understood the Agency's problem of getting services for the needy eye cases. The Variety Club is a civic organization composed of show people of both North and South Carolina. This need, as presented by their board member, aroused their interest to do something for children, and they investigated the plan and decided that Charlotte needed an Out-Patient Eye, Ear, Nose and Throat Clinic. . . . After a great deal of studying and investigation, plans were worked out to establish an Eye, Ear, Nose and Throat Out-Patient Clinic that would work in co-operation with all established private and public social work agencies in the community. The Clinic was opened March 13, 1942.

"The Association for the Blind loans a part of the executive secretary's time to the Clinic to supervise the intake and follow-up case work until the Clinic can obtain the services of a medical social worker with special training in eye work. All expenses, such as rent, equipment, medicine, services, and payment of the supervising ophthalmologist's salary is paid by the Variety Club. The Clinic is located in the basement of the Professional Building. The Clinic has waiting rooms and treatment and refraction rooms for both white and colored patients, and a nose and throat treatment room.

"On clinic days the Clinic has the services of two ophthalmologists and one ear, nose and throat man, a volunteer case aid, the Association's office secretary, and the Association's executive secretary. The patients report by appointment, so that the Clinic will not have a few patients one clinic day and be overflowing the next clinic day. Every agency in the community knows the clinic days and they make application for their clients at least a week in advance. That is, unless there happens to be an emergency case."

—*Mecklenburg County Association for the Blind, Inc.,
Charlotte, North Carolina*

Oklahoma

"The Committee on the Conservation of Vision and Hearing of the State Medical Society has had several conferences with representatives of the Department of Public Welfare, the State Health Department and the Oklahoma Commission for Crippled Children in respect to examining eyes of needy children. This plan has been agreed upon:

"Recommendations for the examination will be made by a phy-

sician representing the Health Department or a physician in private practice. Investigation of the family's ability to pay will be made by the State Department of Public Welfare. The county director of public welfare will issue authorization for the examination when financial need is established.

"The eye physician making the examination will be entitled to charge not more than \$5.00 for his examination, including refraction whenever necessary. It is the Committee's feeling that if, in the physician's opinion, the examination does not warrant a fee of \$5.00, the charge will be correspondingly less. Claim for services will be filed upon a form prepared by the Oklahoma Commission for Crippled Children against the Department of Public Welfare.

"If glasses are found to be necessary, the examining eye physician will sign an appliance order and attach his prescription.

"The order, with the prescription, will be mailed to the Oklahoma Commission for Crippled Children at 313 Franklin Building, Oklahoma City. The Commission, in turn, will indicate the proper encumbrance and forward the order to a convenient optical company who will supply the glasses at clinical rates. Eye physicians are encouraged to suggest preferences in respect to the optical company.

"For the present, the Committee has suggested that those eye specialists approved by the Committee on Standardization under authority of the Oklahoma law for crippled children for work in approved hospitals be accepted for examining children under the proposed plan. Other eye physicians who wish their names added to the approved list will be asked to file applications for approval with the Committee on Standardization. Address Dr. Earl D. McBride, chairman, Committee on Standardization, 313 Franklin Building, Oklahoma City, for application form. . . ."

—*Committee on Conservation of Vision and Hearing,
State Medical Society, Oklahoma City, Oklahoma*

Pennsylvania

"In the interest of furthering the awareness of prevention of blindness in the field of nursing, the Prevention of Blindness Department of the Pennsylvania Association for the Blind invited Miss Eleanor W. Mumford, R.N., Associate for Nursing Activities of the National Society for the Prevention of Blindness, to Pittsburgh in September. A meeting was held in the Association's recreation room, where Miss Mumford was presented to the invited group. The heads of the various schools of nursing, the University of Pittsburgh, and Duquesne University Schools of Nursing, and representatives of school, State and public health nurses were present. A committee was formed to study the eye problems con-

fronting nurses in the various groups, with the plan in mind of incorporating more eye teaching into the schools of nursing. Further meetings will be held, and Miss Mumford will return to Pittsburgh periodically to assist in the planning. It is hoped that such a project will contribute greatly to awakening the interest of local nurses in the prevention measures we are fostering."

—*Prevention of Blindness Department, Pittsburgh Branch, Pennsylvania Association for the Blind, Pittsburgh, Pennsylvania*

South Carolina

"During the past year, the Division for the Blind of the South Carolina State Department of Public Welfare has conducted eight screening clinics. One of these was held in a school situated in a textile village, in compliance with a request from the manager of the mill. Every child found to be in need of ophthalmological examination and other additional treatment was given these services by the mill. In another clinic, the necessary follow-up was given by the local parent-teachers association. The local Lions were responsible for necessary follow-up of still another clinic.

"In addition to the above, the Division has been responsible for 363 ophthalmological examinations this year and 95 operations.

Operations

Cataract:	
Extractions	26
Needlings	24
Discissions	6
Conjunctival flap	2
Dermoid tumor	1
Ectropion	1
Enucleations	9
Iridectomies	5
Plastics	4
Pterygiums	13
Ptosis	1
Removal of foreign body	1
Scleral trephine	1
Strabismus	1
Total	<u>95</u>

Results of Operations

Successful (restoration of vision)	44
Successful (prevention of blindness)	36
No improvement of vision	5
Incomplete	10
Total	<u>95</u>

GLASSES SECURED BY DIVISION FOR THE BLIND IN PROGRAM OF PREVENTION OF BLINDNESS AND CONSERVATION OF VISION

37 pairs for clients whose vision was poorer than 20/200 (myopia).

56 pairs for clients whose vision was poorer than 20/200 (hyperopia).

Included in the above, 8 were totally blind in one eye.

15 pairs for clients whose vision was between 20/70 and 20/200 (myopia).

48 pairs for clients whose vision was between 20/70 and 20/200 (hyperopia).

Included in the latter, 6 were totally blind in one eye.

28 pairs were secured for clients whose vision was better than 20/70. However, conditions were considered progressive. 10 of these were totally blind in one eye.

25 pairs of glasses secured as post-operative treatment (cataract).

11 resulted in giving vision of 20/40					
7	"	"	"	"	" 20/70
4	"	"	"	"	" 20/30
1	"	"	"	"	" 20/25
1	"	"	"	"	" 20/20
1	"	"	"	"	" 20/200

1 pair of glasses secured with frosted lens.

1 pair of colored glasses with high correction in clear pupillary area, secured as an experiment; little improvement in vision obtained.

2 pairs of extra frames secured.

“The State Department of Public Health forwards the Division for the Blind of the State Department of Public Welfare all cases of ophthalmia neonatorum which are reported to them by physicians throughout the State. Every case reported this past year was followed up, with the following results:

Completely recovered	14
Reported in error	6
Unable to locate (name not given and physician reporting case died)	1
Outcome doubtful, although all possible treatment is being given	1
Infant died	1
Total cases reported	<u>23</u>

“One of the most interesting projects which the Division has undertaken during the past year was that of making a survey on

causes of blindness in the State of South Carolina. This study was made by the medical social workers and approved by Dr. Kirby Bryant, former assistant of Dr. Rice, of the Social Security Board, Washington, D. C. The survey included 800 recipients of Aid-to-the-Needy-Blind, as of December 31, 1941. The standard classification used was developed by the Committee on Statistics of the Blind, sponsored jointly by the American Foundation for the Blind and the National Society for the Prevention of Blindness."

—*Division for the Blind, South Carolina State Department of Public Welfare, Columbia, South Carolina*

Tennessee

"*Sight Conservation Activities in Tennessee from May 1, 1942, to November 1, 1942.*—During this period 98 persons, 68 being children and 30 being adults, have had varying amounts of sight restored to them in one or both eyes, either by surgery and glasses, surgery alone, treatment, or by glasses alone. This brings the total number of sight restoration cases during the 4½ years in which the Sight Conservation Service has been in operation to 915, the majority being children.

"Also, during this period, 58 persons, 48 being children and 10 being adults, either have had or are having total, occupational, or partial blindness prevented for them in one or both eyes. The various causes from which this blindness has been or is being prevented are: amblyopia and hyperopia, 25; progressive myopia, 7; amblyopia and myopia, 7; sympathetic ophthalmia, 3; congenital cataracts, 3; congenital optic atrophy, 3; amblyopia and mixed astigmatism, 2; syphilis, 2; trachoma, 2; hemorrhagic purpura, 1; optic neuritis, 1; congenital amblyopia and hyperopia, 1; and pterygium, 1. This brings the total number of persons for whom total, occupational, or partial blindness in one or both eyes, either has been or is being prevented, during the life of the Service, to 506.

"The teacher-training course for sight-saving class teachers organized by the Service for Tennessee and other states was given at George Peabody College in Nashville, the course beginning June 20 and terminating August 1, with Mrs. Winifred Hathaway as director, Mrs. Dorothy Bryan as the demonstration sight-saving class teacher and the Director of the Sight Conservation Service, as the ophthalmic lecturer. Ten teachers and one public health nurse were trained in this course, five teachers being from Tennessee and one each from Massachusetts, Missouri, Florida, Illinois, and Minnesota; and the public health nurse was from Washington, D. C.

"During this period 37 seriously visually handicapped children

eligible for enrollment in sight-saving classes were found, bringing the total number of children found by the Service to 273, or about 18 per cent of the number estimated by the Service to be present in the state.

"In September three more sight-saving classes were established, one being in Chattanooga to care for visually handicapped children from the seventh through the twelfth grades, and one each in Davidson and Sumner Counties to care for children in the first six grades. The equipment for the Chattanooga class was furnished by the Chattanooga Lions Club and for the Davidson and Sumner County classes by the respective county school boards. This brings the total number of sight-saving classes now in operation in the State to eight; this places Tennessee in a tie with Louisiana, which State had been in the lead in the South with these classes for many years.

"During this period, in addition to the twelve ophthalmic lectures given by the Director of the Service in our sight-saving class teacher-training course, six other talks were made, two before Lions Clubs, one before the Lions State Convention at Lafollette and one each to a parent-teacher group, a teacher group at Peabody and a city school board. . . . It is estimated that approximately 410 persons were reached by these talks and lectures.

"Also, in an effort to disseminate information to the general public and the medical profession the Service has distributed to various medical and lay groups 285 mimeographed copies of the survey of the 3,975 cases of blindness and 400 copies of its publication, 'Essential Facts Which the General Public Should Know About Sight-Saving Classes, the Needs, and the Advantages to Tennessee for This Type of Specialized Education.' "

—*Sight Conservation Service, Tennessee Department of Public Health,
Nashville, Tennessee*

Washington

"We thought that perhaps in your next issue you would want to include a notice about the vision-testing pamphlet which is being sent out by the Division for the Blind in Washington as instructions to both teachers and public health nurses for their use in vision testing of school children.

"This pamphlet gives detailed instructions on equipment; preparation of equipment and knowledge necessary for vision screening and the follow-up is included in this pamphlet.

"A definite interest is being taken by the Department of Education through their school supervisor working directly with the Division for the Blind and the public health nursing services, to-

ward the end that school children will have adequate eye tests and necessary follow-up care for their eyes with a complete understanding, by both the teacher and the parents, of any eye disorder."

—*Division for the Blind, Washington Department of Social Security,
Olympia, Washington*

West Virginia

"The following is a summary of the year's activities on conservation of vision in West Virginia:

"The Committee from the State Medical Association consists of Dr. V. E. Holcombe, Charleston, W. Va., Chairman; Dr. Welch England, Parkersburg, W. Va.; and Dr. R. A. Thomassene, Wheeling, W. Va.

"The state institutions for the blind have been visited by the chairman. Information is being obtained as to classification of cases of blindness as to pathology and to educational and rehabilitational programs in operation.

"A survey of industrial plants is under way to ascertain the following facts:

"1. Whether there is in operation in the plants a systematic plan for examination of eyes of employees and supplying them with industrial glasses.

"2. Whether attention is paid to painting interiors with appropriate colors, to furnish maximum vision within plants.

"3. Incidence of eye injuries, average length of disability, and percentage of permanent disability.

"An article is in preparation for the *West Virginia State Medical Journal*, discussing the foremost causes of blindness, namely: (1) Industrial accidents; (2) acute glaucoma; (3) ophthalmia neonatorum; and (4) trachoma."

—*Committee on Conservation of Vision, State Medical Association,
Charleston, West Virginia*

Note and Comment

Inter-American Aspects of Prevention of Blindness Discussed at Annual Meeting.—Several hundred leaders and workers in prevention of blindness from Latin America as well as North America participated in the Annual Meeting of the National Society for the Prevention of Blindness, December 3, at the Hotel Roosevelt, New York City. The subject under consideration was Inter-American Aspects of Prevention of Blindness. The principal speaker was Dr. Moacyr E. Alvaro, Secretary General, National Committee for the Prevention of Blindness of Brazil, whose paper, "Latin American Developments in Prevention of Blindness," is published in this issue of the REVIEW. Other speakers were Dr. William F. Snow, General Director, American Social Hygiene Association, and Dr. Albert Dreisbach, who represented the Office of the Coordinator of Inter-American Affairs.

In connection with the meeting, an all-day exhibit of sight conservation material from representative Latin and North American countries was held which attracted considerable attention. Argentina was represented by an impressive display of striking posters on trachoma control, prevention of ophthalmia neonatorum, eye hazards during fiestas, industrial eye problems, and school eye hygiene. This exhibit was provided by the Patronato Nacional de Ciegos, under the sponsorship of the Argentine Ministry of Justice and Public Instruction. Other countries represented by exhibits or personal delegates were Brazil, Canada, Mexico, Puerto Rico, and the Inter-American Safety Council representing a number of Latin American countries. The National Society for the Prevention of Blindness presented exhibits dealing with industrial eye accidents, glaucoma, and other critical eye health problems of North America.

Attending the meeting and remaining for further conferences was Dr. Luis Sanchez Bulnes, Director of the Mexican Society for the Prevention of Blindness, who indicated that the gravest problem faced by an organization working to prevent blindness in Central or South America is the illiteracy and superstition so prevalent in

certain regions. In an interview, he described the work of his organization since its founding in 1918. He said, in part:

"In 1926 our first hospital was inaugurated. As the number of patients increased, however, this hospital—equipped with only four beds and the instruments to work with—was found inadequate, and in 1939 a new hospital was built, which has all the advantages of any modern eye hospital. Here we treat between 200 and 300 patients daily, all of whom are too poor to pay anything and who are consequently treated without charge.

"In order to extend assistance to the furthestmost regions of the country, we instituted in 1941 a traveling clinic service. Each of the ambulances which comprise the service covers three states of the Republic, on carefully studied routes and schedules. The routes have been planned to include villages farthest from the main highways, in order to provide medical eye service to sufferers who, by reason of their poverty or ignorance, would never reach our hospital. These ambulances are veritable traveling laboratories. In each there are two physicians, a nurse, a chauffeur, and all the necessary medical supplies, together with educational posters and literature. The physicians keep records of the eye diseases predominant in each region they visit, conduct lectures on ocular hygiene in schools and workshops, distribute the educational material, and give away to women of the towns outfits specially prepared for the application of the Credé method.

"Difficult and complicated cases are continually being presented to us both in the field and at the hospital. It is therefore of utmost importance that the latest scientific discoveries and methods of treatment be available to our ophthalmologists. We are hoping to obtain one or two postgraduate scholarships for this purpose. Another of our hopes is eventually to found a school for the education of nurses in ophthalmological work, since there are unfortunately no nurses specializing in eye care and no school in Mexico where they can be trained to do so.

"In order to increase the efficiency of the technical personnel of our institution, we have done the following:

"a. Formed a medical society within the hospital, in which each physician undertakes to present an original scientific work on ophthalmology at least once a year.

"b. Required that, during their first two years in our hospital, the physicians must pass three examinations a year, so that they may make a methodical study of ophthalmology.

"c. Sent, annually, the physician whose work has been most meritorious, for one or two months' study at an ophthalmological center in the United States.

"Ten doctors, six nurses, and a woman superintendent comprise the hospital personnel. It is important to note that, first, none of the physicians charge for their services and, second, since the date of its foundation the Association has only occasionally had any official aid.

"Beside the services for external diagnosis and hospitalization of surgery cases for which the hospital has facilities, we have been able to establish the only organized service in Mexico for photography of the back of the eye and for photomicrography of the anterior segment of the eye. But our accomplishments are dwindled by the enormity of our task. For example, our present resources are really much too slender, in spite of the generosity of our many friends, to make effective our campaign against the dreaded onchocercosis (an eye condition caused by infection with a filarious worm) which claims an appalling number of victims in certain regions. This scourge is only one of the problems we face in this country which do not exist, or exist to a much lesser extent, in the United States. Poverty, illiteracy, superstition, fear—these are even graver obstacles."

Although unable to be represented, the Uruguay Ministry of Public Health sent an extensive report on the activities in blindness prevention and in the control of trachoma. According to the report, the National Commission for Prevention of Blindness was established in 1935 as a part of the Ministry of Public Health. The aims of the Commission were given as follows:

"a. To study the extent and the causes of blindness in this country.

"b. To propose prophylactic measures tending to combat this evil.

"c. To propose the improvements of the services and installations for the best development of this action.

"d. To assist the Ministry of Public Health in all details related to the attendance of the blind."

In 1941, the Uruguay Government reorganized the Commission into the "Blindness Prophylaxis Centre," which includes also the Centre of Struggle against Trachoma. The Program of Action of the Blindness Centre is quoted below:

"1. Revision of the Blind Census initiated by the former National Commission, to take a nearer view of the causes of blindness in the country.

"2. Prevention of Blindness combatting its principal causes, to wit:

- A. Ophthalmia neonatorum.
- B. Trachoma.
- C. Labor ocular accidents.
- D. Lack of attendance, or undue or insufficient attendance of grave ocular diseases.

"3. Dispositions and regulations on Visual Hygiene and Conservation of Eyesight:

- A. Rational illumination of schools, shops, manufacturing plants, and other places of work in common.
- B. Improvement and extension of Sight-Saving Classes. Scholarships in the United States for Uruguayan teachers.
- C. Vigilance in the fulfillment of the regulations upon the commerce of optics and the profession of optician.
- D. Protection and help to the blind, and to persons in danger of losing their eyesight.
- E. Institution of the Social Service in Ophthalmological Clinics."

Other countries sending greetings and messages to the Society on the occasion of the meeting were: Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Newfoundland, Nicaragua, Panama, Santo Domingo, and Venezuela.

War Eye Injuries.—A detailed and timely Symposium on War Medicine, "War Injuries of the Eyes," by Conrad Berens, M.D., and Edward Hartman, M.D., appears in a recent issue of the *Journal of the Medical Society of the County of New York*. Eye injuries encountered infrequently under normal peacetime conditions are described, such as complete destruction of the eyeball, hemorrhages with loss of vision and late optic atrophy following severe explosions, and indirect traumatic lesions of the eye resulting from gunshot wounds of the face. Procedures formulated here and abroad for treating burns of the eyelids and of the eyeball are listed; cod liver oil is used on eyelid burns in Germany and in Great Britain gentian violet and silver nitrate. The use of tetanus antitoxin in all cases of burns and wounds is strongly recommended, as well as the local and general use of sulfanilamide or sulfadiazine.

Visual Standards for Motorists.—In a year of war, the United States has suffered approximately three times the number of casu-

alties on the streets and highways that it has on battlefield and ocean. Dr. Lowell Selling, writing in a recent issue of the *Journal of the American Medical Association*, feels that the ophthalmologist can fill a valuable place in the prevention of such needless mortality. First, he can continue work on the establishment of visual standards—standards which are adaptable to change if they are found not to be closely correlated to the driving situation. The Snellen charts, for instance, devised to detect reading ability at a distance of 20 feet, have only one specific corollary: the ability to read direction signs on the road in time to follow instructions, such as bringing the car to a stop. Chart visual acuity has little to do with the ability to judge speed and distance of a large moving object, or to predict the spatial conduct of another driver. Secondly, Dr. Selling suggests, the ophthalmologist should make an evaluation of many individual cases, so that future driving can be predicted from the whole picture rather than from the point of view of visual acuity alone. In expressing an opinion as to the driver's potential dangerousness, the ophthalmologist must be careful to consider the possibility of many influencing factors other than visual acuity. The candidate for a license might be extremely sensitive to glare; he might have a photophobia; or he might have scotomas that could cause a blind reaction in a moment of crisis.

“Third, an educational rephrasing of the whole picture is necessary in order to minimize some of the superficial aspects of tests of a driver's vision.” Color blindness, monocular vision, and mild restriction of the visual field may not be dangerous handicaps. On the other hand, emphasis should be laid on the need for restricting the driving of individuals with acute or chronic conditions which are of significance in the driving field. All driving restrictions on the basis of vision should be made by the ophthalmologist, if possible, rather than by even the trained lay examiner.

Diet in Experimental Cataract.—Several types of experimental cataracts have been produced in animals by feeding them a diet lacking in riboflavin, or by excessive feeding of sugars in a diet otherwise correct. Recently, detailed studies have been made of the effect upon the eyes of a diet deficient in tryptophane, one of the essential amino-acids. A group of young rats was given a diet

containing all the necessary food elements except tryptophane. Over 90 per cent of the rats developed cataract of a type which could easily be distinguished from vitamin G-deficiency cataracts and from any of the excess-sugar cataracts.

Source Material on Public Health.—Workers in prevention of blindness will be interested to know of a service offered by the National Health Library, maintained by the National Health Council, of which this Society is a member. An annual subscription price of \$2.50 brings to the subscriber the *Library Index*, a weekly listing of articles on public health—including sight conservation—selected from over 500 current periodicals. A \$10 yearly membership entitles the holder to the privileges of using the National Health Library reading room, receiving reading lists and reference information on request, and borrowing books and pamphlets, in addition to receiving the weekly *Library Index*. Inquiries may be directed to the National Health Library, 1790 Broadway, New York, N. Y.

Social Hygiene Day, February 3, 1943.—Carrying on its usual co-operation, the Society distributed the following release in connection with the observance of National Social Hygiene Day:

“Calling attention to the fact that syphilis and gonorrhea have been responsible for the loss of sight of thousands of men, women and children in the United States, the National Society for the Prevention of Blindness is urging widespread observance of National Social Hygiene Day on February 3.

“‘This year,’ said Mrs. Eleanor Brown Merrill, Executive Director of the Society, ‘we have a special interest in the campaign against these diseases because their spread is a form of sabotage which impedes the war effort. The fight to control syphilis, which has been carried on so vigorously for a number of years by the United States Public Health Service and the American Social Hygiene Association is more important now than ever before.

“‘There are approximately 200,000 blind persons throughout the country, and it is estimated that more than 15 per cent of those who must walk in darkness lost their sight because of syphilis or gonorrhea. It is obvious, therefore, that there is a close relationship between the movement for prevention of blindness and the drive to stamp out these diseases.

“‘Although one cannot estimate in terms of dollars and cents

the tragedy that enters every home in which a person has lost his sight, it is well known that the cost of syphilitic blindness to the victims and to the taxpayers amounts to many millions of dollars annually.

“Thousands of babies are born with congenital syphilis every year, and most of them develop a serious eye condition at some time in early life unless they receive adequate medical care. Fortunately, prenatal syphilis is preventable if the expectant mother begins treatment in the early months of pregnancy. We must bring this reassuring message to every expectant mother, for prevention is so much easier than efforts to cure.

“Another point which needs emphasis is that the eye hazards of industry are greater when workers are suffering from syphilis. The presence of this disease increases the severity of eye injuries; a little cut or bruise of the cornea that would otherwise pass unnoticed may develop into a serious condition if the worker has syphilis. This is not only sad from the standpoint of the individual, but serious in view of the need to maintain and to increase our industrial production to assure the earliest possible victory in the war.

“To keep America strong we must take advantage of the scientific advances that can help us control these diseases and safeguard eyesight. An important step in this direction is the extensive program of public education which is scheduled for National Social Hygiene Day on February 3.’”

The Society will, of course, have an exhibit at the New York Meeting to be held at the Astor Hotel, and extends an invitation to all prevention of blindness workers in the vicinity to attend.

Incidentally, readers will be interested to know that the American Social Hygiene Association is supplying army camp libraries with reading material in the field of social hygiene, selected from a list drawn up by the army.

The Eyes of the Airplane Pilot.—Intensive efforts to cut in half the number of airplane accidents by insisting that pilots meet stiff physical and particularly visual requirements came about as a result of the discovery long ago that a majority of accidents is due to pilot failure rather than machine failure. For example, it is felt that there is a definite relation between poor landings and borderline depth perception. The pilot with esophoria is likely to judge

the ground to be farther away than it actually is and run the nose of his plane into the ground. The flyer with exophoria may level off too soon in landing, stall, and smash up. In the thin air of high altitudes, accommodation may be greatly diminished, and this—coupled with the tonic action of the muscle of accommodation induced by the effort to focus the light ray on the retina—will help to tire the eye with a latent hyperopia of more than one diopter, causing the pilot to fail to read precision maps and instruments correctly. Visual acuity of 20/20 is insisted upon, and no contact or other lenses are allowed. Ready dark adaptability is another necessary qualification. The night flyer must be able to change his vision quickly and efficiently from the bright instrument panel to the outside world and back. He must be unaffected by disturbing effects of glare—glare from searchlights, from a dazzling tropical sun or the burning reflection from fuselage can give rise to defective adaptation and night blindness, disturbances of visual acuity, accommodation and fields. Conjunctivitis, too, is sometimes produced by long or frequent exposure to the higher actinic effects of sunlight at high altitudes. However, in spite of the apparently numerous hazards to which the pilot's eyes may be subject, there is no evidence that military aviation is likely to cause permanent damage to vision.

Steel Gets in the Eye.—Daily inspection of all hammers and chisels by the shop foreman is recommended by Dr. Francis D. Gulliver in an article appearing in the November issue of the *Archives of Ophthalmology*. In his experience with 1,800 intra-ocular foreign bodies, Dr. Gulliver has encountered only 10 which were not steel. Eighty per cent of the foreign bodies originated in the mushroomed edges of a cold chisel, a steel drill or a steel hammer. Excluding cases of irreparable initial damage, Dr. Gulliver found that in 80 to 90 per cent of the cases in which the particle was successfully removed it was possible to retain normal or slightly less than normal vision after removal.

Asks Aid in Bringing New Eye Disease Under Control.—To assist in bringing under control the new eye disease, epidemic keratoconjunctivitis (inflammation of the cornea and of the membrane

lining the eyelids and covering the front of the eyeball), it is requested in a letter in *The Journal of the American Medical Association* that new outbreaks of the disease be reported to Murray Sanders, M.D., New York, who has been assigned by the army to study the disease. The letter by John R. Paul, M.D., Director, Commission on Neurotropic Virus Diseases, Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the army, is as follows:

To the Editor: Among some of the growing problems which have confronted both health officers and industrial physicians in the country during the past year has been that of epidemic keratoconjunctivitis, called by some "shipyard conjunctivitis." The disease is apparently new to this country, but it has appeared in epidemic form both on the West Coast and in the East (and perhaps elsewhere) during the short space of a few months. During this period, however, much has been learned, to which recent articles testify. This information is not general as yet and apparently epidemic situations can develop insidiously in factories before the nature of the conjunctivitis in its potential seriousness is recognized.

To my knowledge the disease is not reportable in this country, and because of this and other obvious reasons it seems wise to bring it to the attention of *The Journal*. It is earnestly requested that if new outbreaks, or suspected outbreaks, of this disease (epidemic keratoconjunctivitis) should occur, notification of this fact be made to Dr. Murray Sanders (Department of Bacteriology, College of Physicians and Surgeons, 630 West 168th Street, New York City).

Dr. Sanders has been assigned by the Board for the Investigation of Epidemic Diseases in the U. S. Army to study this problem and to assist in the control of this disease.

Meeting of the International Council for Exceptional Children.—

The twenty-first annual convention of the International Council for Exceptional Children will be held February 24, 25, and 26, 1943, at the Lincoln Hotel, Indianapolis, Indiana. Dr. John J. Lee of Wayne University has been elected Acting President of the International Council, in the absence of Dr. Samuel Kirk, President, who has entered the service of the U. S. Army Specialist Corps.

State Agencies in Prevention of Blindness.—Reporting on the distribution of health services in the structure of state government, in a recent issue of *Public Health Reports* Joseph W. Mountin and Evelyn Flook evaluate state medical care for special conditions. As state aid-to-the-blind programs developed and the large number

of blind persons in need of public assistance was disclosed, state attention began for the first time to be focused on the prevention of partial and total blindness. Until recently, prevention of blindness in infants was the only aspect of sight conservation or restoration for which the state had felt responsibility. State health departments, without exception, have promoted the use of the Credé method, and in the few remaining states in which there is no legislation directing that silver nitrate be instilled in the eyes of the newborn, the health department particularly urges its use.

In several states definite programs have been established for the control of trachoma. Two state health departments maintain hospitals exclusively for the treatment of trachoma cases; another state finances the hospitalization of trachoma patients on the basis of individual cases. Four health departments and three departments of welfare provide diagnosis and treatment of this disease through trachoma clinics.

For the purpose of discovering progressive remediable eye disorders and diseases, 15 states have established refraction clinics, in many cases operated by the state university hospital. Fourteen other states finance individual ophthalmological examinations, chiefly for applicants for aid-to-the-blind. Hospital care, inclusive of surgery, is provided certain groups of patients at state expense in approximately two thirds of the areas. The eligibility of the patient for this service is variously determined in each state, in some cases by the patient's income or by the judgment of the state ophthalmologist, or by a combination of the two conditions. In approximately 20 per cent of the states which provide hospital care for eye cases this service is one item of a general program of medical care.

Edward Jackson, M.D., Sc.D., 1856–1942.—The REVIEW has lost a guiding spirit in the death of Dr. Edward Jackson, a leader in ophthalmology and in prevention of blindness. We quote here the tribute paid to him by the Board of Directors of the Society.

“Death has taken away one of the outstanding pioneers in the movement for prevention of blindness, Dr. Edward Jackson. He reached the ripe age of eighty-six, and was active to the very end of a career that was of the greatest service to mankind.

“Dr. Jackson’s efforts to conserve vision extended over a period of sixty years. In addition to being a distinguished ophthalmologist, he was also a trail blazer in the lay movement for protection of eyesight. In recognition of his outstanding achievements in this field, he received the first award of the Leslie Dana Gold Medal when it was established in 1925.

“His contributions to medicine—as teacher, writer and practitioner—were immense. He was surgeon to the Wills Eye Hospital in Philadelphia for several years, Professor Emeritus of Ophthalmology in the University of Colorado, Consulting Editor of the American Journal of Ophthalmology, and former president of all leading ophthalmological societies.

“A modest and wise man, Dr. Jackson was long known affectionately as ‘the dean of American ophthalmologists,’ and his name was respected in scientific circles throughout the world. Men of his stature and attainments are rare, and difficult to replace.”

Luther Crouse Peter, M.D., 1869–1942.—Dr. Luther C. Peter, a former President of the American Board of Ophthalmology and of the American Academy of Ophthalmology and Otolaryngology, and since 1940 professor emeritus of ophthalmology in the Graduate School of Medicine of the University of Pennsylvania, died November 12, 1942, at the age of 73 years. We have had the privilege of publishing several of Dr. Peter’s articles in the REVIEW, and the benefit of his generous counsel as a member of the Society’s Advisory Committee. Dr. Peter will be deeply missed, not only for his professional advice, but for his warm support whenever we turned to him for assistance.

Current Articles of Interest

Miotics and Mydriatics in Relation to Ocular Hypertension, Carl Koller, M.D., *Diseases of the Eye, Ear, Nose and Throat*, October, 1942, published monthly by the Physicians Postgraduate Press, 500 North Dearborn Street, Chicago, Illinois. The effect of mydriatics in precipitating hypertension in predisposed eyes is generally ascribed to a blocking of the angle of the anterior chamber, brought about by the iris moving to the periphery. While this is a factor, states Dr. Koller, its importance is much overemphasized, for the absorbing power of the pectinate ligament and Schlemm's canal is certainly less than the absorbing power of the circulation (the capillaries and veins of the iris and the veins and lymph vessels of the posterior surface of the choroid). Mydriatics have a strong constricting action upon the arteries of the iris and the choroid, and there is a resultant slowing up of the blood flow. The arterial blood pressure, remaining unchanged, is not sufficient to drive the blood through the smaller arteries and veins; consequently the choroidal veins become engorged. Miotics, on the other hand, dilate the arteries, thus speeding up the circulation in the uvea and the iris and broadening the absorbing surface of the iris, and as a result increasing the drainage of intra-ocular fluid. The narrowing of the pupil is caused incidentally as the pressure of blood in radically arranged arteries broadens the iris. In the process, the iris angle is freed and a way of drainage through Schlemm's canal provided for the aqueous, but Dr. Koller believes it inaccurate to attribute the lowering of intra-ocular pressure solely to the freeing of the iris angle.

The wide pupil characteristic of hypertension is due to the emptying of the iridic arteries, which allows them to assume a tortuous course, whereupon they cease to counteract the action of the elastic fibers which dilate the iris. The other characteristics of hypertension—narrow, constricted arteries and engorged choroidal veins—provide the basis for an understanding of the aggravating action of mydriatics and the remedial action of miotics, hot applications and morphine, by way of the circulatory system. Dr. Koller sug-

gests that the existing confusion has been caused in part by the nomenclature, which refers to the size of the pupil in describing the action of miotics and mydriatics, rather than to their effect upon the circulation. He feels that it is more than an academic dispute, however, since it is responsible for the widespread belief that increase of tension is entirely due to "blocking of the angle of the anterior chamber."

Extração Capsulo-Lenticular da Catarata, Sem, Midriase, José de Almeida Rebouças, *Arquivos Brasileiros de Oftalmologia*, October, 1942, published bimonthly by Liga Nacional de Prevenção da Cegueira, São Paulo, Brasil. The author describes the following procedures and methods as developed by him in his clinic: (a) the akinesia; (b) the peripheral iridectomy, made with a toothless forceps; (c) the points of suture made after keratotomy; and (d) the operation without mydriasis. He describes a special lightweight dressing, and concludes with the presentation of thirteen cases of intracapsular extraction.

War Gas Injuries of the Eye, Edmund D. Godwin, M.D., *California and Western Medicine*, November, 1942, published monthly by the California Medical Association, 450 Sutter, San Francisco, California. Because mustard gas is the only vesicant which has had use in the thirty-eight years since poison gases were first employed as an agent of warfare, mustard is the only gas which up to the present has resulted in serious eye injuries. Being easily soluble in animal fat, it penetrates rapidly into skin and lid margin, acting upon cornea and conjunctiva as a protoplasmic poison and working deep into the tissue. Repeated minimal exposures are cumulative in effect.

A latent period of from 2 to 48 hours follows exposure to mustard vapor; droplets of the liquid, however, cause almost immediate discomfort. Victims experience a burning sensation, followed by pain in and around the eye, with a sandy feeling under the lids. Tearing is profuse, although the gas does not dissolve in lacrimal secretion, and blepharospasm is often intense enough to prevent voluntary opening of the eyes. The severity of the picture depends upon the degree of exposure, and cases can be divided into two

groups, according to the existence of visible corneal involvement. Seventy-five to 90 per cent of all cases are mild, showing conjunctival congestion, especially in the palpebral aperture, and edema of the margins of the lids where the fatty meibomian secretion makes them particularly vulnerable. In these instances, two weeks is the period usually required for complete recovery. However, 10 to 25 per cent of cases develop more serious reactions. The cornea may reveal an "orange-peel" texture, or it may be eroded. Surface conjunctiva is destroyed, and iris spasm produces miosis. Convalescence may require several months.

After exposure to mustard gas, treatment is useless to prevent a lesion, but the extent of the damage may be reduced by prompt lavage. The eyes should be opened to release dammed-up tears and to show the alarmed patient that he is not blind. Frequent irrigation with a bland solution, such as normal saline, guards against bacterial complications. Bandaging is contraindicated but dark glasses or an eye shade should be worn. Mineral oil may be instilled to prevent adhesion of the raw surfaces and atropine is used in eyes with corneal damage. The same treatment should be given in cases of lewisite eye injury. Lewisite is similar in action to mustard, but in addition contains arsenic. Ocular lesions are more marked. Prophylaxis in all cases of possible gas eye injury includes use of the gas mask and periodic eye irrigation. This holds true of the lacrimator gases, also, although their effect on the eye, while distressing, is relatively innocuous and symptoms cease soon after removal from the contaminated atmosphere.

The Therapy of External Diseases of the Eye, Major Edward P. Burch, First Lieutenant Herman G. Rubin, and First Lieutenant Welborn W. Sanger, M.C., U. S. Army, *The Military Surgeon*, November, 1942, published monthly by the Association of Military Surgeons of the United States, Washington, D. C.

The authors present an outline of procedures employed at the Eye, Ear, Nose and Throat Clinic of the Station Hospital at Fort Sill, Oklahoma.

Clinical records of the Fort Sill Station Hospital, which is considered to be a representative post, show the following to comprise the majority of external diseases of the eye:

1. Impacted foreign bodies of the cornea.
2. Conjunctivitis, especially the acute catarrhal type.
3. Corneal ulcers, frequently occurring in association with catarrhal conjunctivitis.
4. Acute dacryocystitis.
5. Blepharitis marginalis.
6. Hordeolum.
7. Pterygium.

Although most of these conditions, with the possible exception of ulcerative keratitis and foreign body complications, cause no serious impairment of vision, the acute infectious conditions can produce considerable disability and loss of time from duty.

In the therapy of external infectious conditions of the eye, the authors have routinely used a 5% sulfathiazole ointment in a petrolatum base, and results have indicated its use to be of definite value. Properly prepared, the ointment does not injure the mucous membranes, and considerably shortens the course of infection in comparison with other ophthalmic ointments. Infections of which staphylococcus is the causative organism are combatted successfully by means of the toxoid, and in severe or intractable cases the combined use of sulfathiazole and toxoid was found most effective.

Superficial Vascularization of the Cornea, Harold R. Sandstead, Passed Surgeon General, United States Public Health Service, *Public Health Reports*, November 27, 1942, published weekly by the United States Public Health Service, Washington, D. C. In 1931 and again in 1939 there were reports of a causal relationship between vitamin G deficiency and vascularizing keratitis in animals. In 1940 it was reported that a superficial vascularizing keratitis of the cornea in human patients known to be receiving insufficient riboflavin was cured when the vitamin was administered and recurred when the vitamin was withdrawn. The Conference on Methods and Procedures for Nutrition Survey stated in 1942, "Characteristic capillary invasion of the cornea is an index of riboflavin deficiency and it is recommended that this examination (slit-lamp and biomicroscopic examination) be used in group assessments of the nutritional status."

The present survey by Dr. Sandstead was undertaken to collect

data on the prevalence of superficial vascularization of the cornea in various population groups, and the effect of riboflavin on that condition. Study groups totaling 366 persons were examined and 52 of these were included in a riboflavin-feeding project. There was a group of 107 parochial school children, one of 190 National Youth Administration youths, and two groups of adults, totaling 69. Two examiners routinely made independent examinations of all who received therapy, as well as of the majority of the whole survey group. Superficial vascularization of the cornea was found to be extremely prevalent. Of the parochial children studied, only 18 per cent were without penetration of vessels beyond the limbus. Only 6.3 per cent of the National Youth Administration subjects (the group with lowest financial status) and 45.2 of the adults were without corneal vascularization.

Twenty-four youths who presented varying degrees of corneal vascularization were re-examined and divided equally into control and riboflavin-feeding groups. Five older subjects with corneal involvement were also placed in the riboflavin-feeding group. Therapy continued for 60 days, with re-examination every 10 days. A group of 22 school children were equally divided into therapy and control groups, and were re-examined after 49 days of therapy. Dr. Sandstead summarizes the results of therapy and the conclusions that might be drawn:

"In the two controlled feeding projects, one of which was by individual school feeding, no significant change in the degree of corneal vascularization occurred which could be ascribed to riboflavin effect. In no instance was there complete disappearance of the vessels and in several a progression was observed. At the present time, therefore, it seems doubtful that superficial vascularization of the cornea, as observed in this study and as found in the general population, should be considered a diagnostic sign of riboflavin deficiency; further controlled investigations along this line should be made."

The Removal of Metallic Foreign Bodies from the Eyeball and from the Orbit, Edmund B. Spaeth, M.D., *Journal of the American Medical Association*, October 31, 1942, published weekly by the

American Medical Association, 535 North Dearborn Street, Chicago, Illinois. The author presents the following summary:

"The extraction of magnetic and nonmagnetic foreign bodies from the globe and the orbit from personal experiences is considered to evaluate some of the rather significant and important procedures at one's command. They include the following:

"1. The great and important possibilities of roentgenograms, frequently not used adequately, both as to flat angled views and as to stereoscopic views.

"2. The use of air injections into Tenon's capsule for more accurate localization of extra-ocular particles.

"3. The use of radiopaque appliances for localization, but especially as an aid to the extraction of nonmagnetic foreign bodies, with a flap sclerotomy.

"4. The use of and the indications for the biplane fluoroscope.

"5. A consideration of certain important factors in the use of magnets, diagnostic and therapeutic.

"6. Indications for, and the use of, the endoscope."

Book Review

THE ART OF SEEING. Aldous Huxley. New York: Harper & Brothers, 1942. 273 p.

The crop of books on this particular fad is still abundant, and we must assume that the demand for such writings is adequate to compensate the publishers for the risk and expense of placing them on the market. Here we see one of the oldest publishing houses in the United States putting the stamp of its enthusiastic approval upon a volume which is based on prejudice, false hopes, and lack of scientific understanding of the organ of vision.

The general value of publishers' announcements is seriously discounted by such a statement as that of Harper & Brothers—"established 1817"—that this book is "a rediscovery of the basic rules of vision." Aldous Huxley has rediscovered no basic rules of vision. He has not rediscovered anything at all. Such parts of his volume as have any value at all have been lifted from the works of writers on psychology. Of the physical facts of vision he knows very little.

Huxley's teacher, so far as the "art of seeing" is concerned, is the late William H. Bates, whose German followers have not hesitated to compare him with Christ, and who claimed to cure glaucoma, myopia, hyperopia, astigmatism, presbyopia, cough, hay fever, rheumatism, trigeminal neuralgia, incipient cataract, syphilitic iritis, retinitis, and keratitis, and to relieve the toxic effects of typhoid, influenza, and gonorrhea.

Bates presented to the public a supposed group of animal experiments by which he claimed to have proved that accommodation in animals, and also in man, was due to the action of the superior and inferior oblique muscles. These experiments, largely on fishes, were performed in obvious ignorance of laboratory technique and of the facts of human anatomy and comparative ophthalmology. Bates's contention that the crystalline lens has nothing to do with accommodation ignores completely the clear demonstrations of accommodative action which have been obtained with the slit-lamp and in other ways. He was also quite ignorant of, or preferred to ignore, the indisputable evidence of astigmatic corneal curvature

as presented by the ophthalmometer, although such evidence can be obtained repeatedly on the same patient at intervals of time and under varying conditions of rest and exercise, ocular use and disuse.

Huxley accepts as gospel everything that Bates taught, and wraps around these teachings a fine frenzy of psychological discourse. Any elements of truth and interest contained in his psychological dissertations do not offer the least support for his contention that "orthodox ophthalmologists are content to palliate the symptoms of poor sight by means of 'those valuable crutches,' artificial lenses"; or that ophthalmologists "work only on the sensing eye and ignore completely the selecting, perceiving, and seeing mind."

Aldous Huxley, as the publishers tell us, had the misfortune to suffer in his youth from a serious eye affliction which forced him to leave Eton College, and from which he was almost completely blind for three or four years. He succeeded in going through Balliol College, Oxford, by reading with a magnifying glass. Huxley's own preface speaks of a violent attack of *keratitis punctata* which left one eye just capable of light perception and the other with enough vision to permit of his detecting the two-hundred foot letter on the Snellen chart at ten feet (that is, five per cent of normal vision).

Whatever we may think of some of his literary productions, it is, of course, remarkable that a man so afflicted should have achieved such success in the world of letters. A man whose corneas were so clouded and distorted must have experienced great distress and repeated fatigue in the use of his eyes; and his many vain efforts to obtain substantial benefit from the wearing of spectacle lenses have no doubt had much to do with his belief in the Bates method.

What are the various therapeutic measures recommended by Bates, and repeated, with much amplification, by his disciple, Huxley? Essentially they resolve themselves into a variety of maneuvers, some ludicrous but many obvious and quite lacking in mystery, to produce relaxation of the eyes and of the general nervous system. Never is substantial evidence presented to the effect that any person's vision was measurably improved by the exercises, or that the underlying refractive condition of the eyes was changed.

If, when tired of reading, you have covered your eyes with your hands, you have performed one of the classical "exercises" for the

"improvement of sight by natural methods," to quote the title of a book by another of Bates's ilk. This is practically what Bates would call by the fancy title of "palming." "Blinking," "flashing," "winking," and "shifting" (moving the focus from one thing to another) prove upon examination to be merely further methods of mental, ocular, and bodily relaxation.

Huxley touches but little upon Bates's extravagant claims for the cure of serious eye diseases by means of so-called exercises. "The art of seeing," he says, "is not primarily a therapy; but, at one remove and indirectly, it results in the relief or cure of many serious diseases of the eyes."

Naïvely, Huxley remarks that some of the procedures described may seem rather silly, childish, and undignified. Particularly recommended by Huxley, and perhaps original with him, is "nose-writing." "Sitting down comfortably in an easy chair, close your eyes and imagine that you have a good long pencil attached to the end of your nose. . . . Equipped with this instrument, move your head and neck so as to write with your protracted nose upon an imaginary sheet of paper . . . eight or nine inches in front of your face. Begin by drawing a good-sized circle. . . . Go over it half a dozen times, round and round, until the thickened circumference comes to look presentable." And so on, for two pages.

We are assured that "A little nose-writing, followed by a few minutes of palming, will do wonders in relieving the fatigue of a strained mind and staring eyes, and will result in a perceptible temporary improvement of defective vision. This temporary improvement will become permanent, as the normal and natural functioning fostered by nose-writing and the other procedures described in this book becomes habitual and automatic."

It must be remembered that, in addition to those unfortunate subjects who, like Huxley, can never hope to have perfect vision either with or without glasses, there are always a great many people in whom the influence of vanity is so strong that they will do almost anything to avoid the wearing of spectacle lenses. We recall that the German genius, Johann Wolfgang Goethe, although highly myopic, was so vain as to his personal appearance that he tried to avoid the wearing of glasses in the presence of others.

In his *Wilhelm Meister's Wanderjahre*, Goethe speaks of glasses

as favoring darkness and inward falsity. "He who wears glasses regards himself as wiser than he is." "Whenever I look through glasses, I am another person and am displeasing to myself; I see more than I ought to see, the world which I thus see more sharply defined does not harmonize with my inward self, and I quickly lay the glasses aside as soon as my curiosity as to the nature of this or that distant object is satisfied."

Many people of this type will probably continue to frequent the dishonest practitioner who pretends to cure refractive errors by eye exercises, or the Bates disciple who claims similar benefits from the sort of exercises described in the present volume. But it is hardly likely that the vast majority of intelligent persons who have access to a good ophthalmologist will permit themselves to be fooled in either of these ways.

—WILLIAM H. CRISP, M.D.

Briefer Comment

OUTWITTING THE HAZARDS: Youth Attacks the Accident Problem. Francis L. Bacon. New York: Silver Burdett Company, 1941. 446 p.

Copiously illustrated with clear, humorous drawings and excellent photographs, *Outwitting the Hazards* is a manual for a high school or even an adult class in safety. The hazards of modern living are analyzed and suggestions and factual information given on how to outwit them. Not only the hazards in and about school and home but others are discussed. Airplane accidents are analyzed; up-to-the-minute details are described of the latest safety devices for parachutes and lifeboats. The automobile receives deserved attention as a consumer problem, with diagrams of the clutch and the brake drum to catch the eye of the high-school mechanic. The writer does not make the mistake of assuming that the modern young reader comes to this book interested in safety, as such; rather, he seeks to stimulate attention to important hazards through an appeal to youthful interest in camping, science, sports, mechanics, and modern industry. The book is well adapted to integration in any class on community affairs, civics, or even general science.

Contributors to This Issue

Moacyr E. Alvaro, M.D., is a leading ophthalmologist and public welfare figure in Brazil.

Charles P. Tolman, a past president of the National Safety Council, is consulting engineer to the Society in its expanding industrial program.

Mark J. Schoenberg, M.D., known to readers as a member of the REVIEW's Board of Editors, is also chairman of the Society's Committee on Glaucoma.

Eleanor Brown Merrill, executive director of the Society, is also secretary of the National Health Council for the present year.

Isadore Givner, M.D., is a practising ophthalmologist in New York City and president of the New York Society for Clinical Ophthalmology.

Book reviewer: **William H. Crisp, M.D.**, is a consulting editor of the *American Journal of Ophthalmology*.

Index—Sight-Saving Review

Volume XII: 1942

Administration and Program Planning:

Administrative Problems of Eye Clinics in Caring for Glaucoma Patients. VIRGINIA SMITH. 3:182

Administrative Problems of Eye Clinics in Caring for Glaucoma Patients. VIRGINIA SMITH. 3:182

ALVARO, MOACYR E., M.D. Latin American Developments in the Prevention of Blindness. 4:235

Aniseikonia. HOMER B. FIELD, M.D. 2:98

Apropos of Glaucoma. MARK J. SCHOENBERG, M.D. 4:252

Book Reviews:

Art of Seeing. Aldous Huxley. Reviewed by WILLIAM H. CRISP, M.D. 4:303

Contact Lenses. Theo. S. Obrig. Reviewed by OLGA SITCHEVSKA, M.D. 3:226

Handbook of Ocular Therapeutics. Sanford R. Gifford. Reviewed by ADOLPH POSNER, M.D. 3:222

Modern Factory Lighting. British Electrical Development Association and ELMA Lighting Service Bureau. Reviewed by CHARLES P. TOLMAN. 2:155

Motivation and Visual Factors. Irving Bender, Henry A. Imus, John W. M. Rothney, Camilla Kemple, Mary R. England.

Reviewed by ARNO E. TOWN, M.D. 3:227

Nursing in Diseases of the Eye, Ear, Nose and Throat. Manhattan Eye, Ear and Throat Hospital. Reviewed by ANNE M. HAHN, R.N. 3:223

Play for Convalescent Children. Anne Marie Smith. Reviewed by ELIZABETH G. GARDINER. 2:156

Role of the Teacher in Health Education. Ruth M. Strang, Ph.D, and Dean F. Smiley, M.D. Reviewed by PAULINE BROOKS WILLIAMSON. 3:224

Briefer Comment:

Account of Twelve Months of Health Defense. FIORELLO H. LA GUARDIA, Mayor; JOHN L. RICE, M.D., Commissioner of Health. 2:158

Fundamentals of Physical Examination. GEORGE G. DEAVER, M.D. 2:158

Outwitting the Hazards. FRANCIS L. BACON. 4:306

Public Health Nurse in Action. MARGUERITE WALES. 2:159

Study of Railway Transportation, Vols. I and II. Association of American Railroads. 3:228

Care of the Eyes in Middle Age. WILLIS S. KNIGHTON, M.D. 3:190

CARRIS, LEWIS H. Twenty Years in Saving Sight. 3:168

Children:

Children's Services in Sight Conservation. LAURA E. DESTER. 2:110

Legibility in Comic Books. MATTHEW LUCKIESH and FRANK K. MOSS. 1:19

Ophthalmologist and the Partially Seeing Child. WINIFRED HATHAWAY. 3:196

Parent's Responsibility in the Detection and Treatment of Crossed Eyes. ISADORE GIVNER, M.D. 4:266

Children's Services in Sight Conservation. LAURA E. DESTER. 2:110

Conservation of Vision:

Care of the Eyes in Middle Age. WILLIS S. KNIGHTON, M.D. 3:190

Children's Services in Sight Conservation. LAURA E. DESTER. 2:110

Eye Protection in the Defense Industries. JOSEPH A. HALLER. 1:11

Latin American Developments in the Prevention of Blindness. MOACYR E. ALVARO, M.D. 4:235

Legibility in Comic Books. MATTHEW LUCKIESH and FRANK K. MOSS. 1:19

Ophthalmologist and the Partially Seeing Child. WINIFRED HATHAWAY. 3:196

Sight Restoration in Indiana as Conducted by the State Department of Public Welfare. C. W. RUTHERFORD, M.D. 2:103

Specialization of Conservation of Vision in Institutional Nursing. CORA L. SHAW, R.N. 1:25

Twenty Years in Saving Sight. LEWIS H. CARRIS. 3:168

View of Prevention of Blindness in Relation to Public Health. ELEANOR BROWN MERRILL. 2:90

Year of Sight Conservation Work in Wartime. ELEANOR BROWN MERRILL. 4:259

Contributors: 1:80; 2:160; 3:232; 4:307

Current Articles of Interest: 2:153; 3:214; 4:297

Current Publications on Sight Conservation: 3:229

Demonstrations of Medical Social Work in Eye Clinics. ELIZABETH G. GARDINER. 2:125

DESTER, LAURA, E. Children's Services in Sight Conservation. 2:110

EBELING, ALMA. Industrial Worker—His Eyes. (Forum) 3:201

Eye Diseases and Defects:

Administrative Problems of Eye Clinics in Caring for Glaucoma Patients. VIRGINIA SMITH. 3:182

Aniseikonia. HOMER B. FIELD, M.D. 2:98

Apropos of Glaucoma. MARK J. SCHOENBERG, M.D. 4:252

Eye Problem in the National Defense Situation. HARRY S. GRADLE, M.D. 1:3

Glaucoma. HARRY S. GRADLE, M.D. (Forum) 4:270

Ophthalmia Neonatorum. J. VINCENT FLACK, M.D. 2:120

Parent's Responsibility in the Detection and Treatment of Crossed Eyes. ISADORE GIVNER, M.D. 4:266

Eye Injuries:

First Aid for Eye Injuries. ARNO E. TOWN, M.D. 3:163

War and Eye Injuries. OLGA SITCHEVSKA, M.D. 2:83

Eye Problem in the National Defense Situation. HARRY S. GRADLE, M.D. 1:3

Eye Protection in the Defense Industries. JOSEPH A. HALLER. 1:11

FIELD, HOMER B., M.D. Aniseikonia. 2:98

First Aid for Eye Injuries. ARNO E. TOWN, M.D. 3:163

First Inter-American Congress on the Prevention of Blindness. MATTHEW LUCKIESH. (Forum) 3:205

FLACK, J. VINCENT, M.D. Ophthalmia Neonatorum. 2:120

Forum:

First Inter-American Congress on the Prevention of Blindness. MATTHEW LUCKIESH. 3:205

Glaucoma. HARRY S. GRADLE. 4:270

Industrial Worker—His Eyes. ALMA EBELING. 3:201

GARDINER, ELIZABETH G. Demonstrations of Medical Social Work in Eye Clinics. 2:125

GIVNER, ISADORE, M.D. Parent's Responsibility in the Detection and Treatment of Crossed Eyes. 4:266

Glaucoma. HARRY S. GRADLE, M.D. (Forum) 4:270

GRADLE, HARRY S., M.D. Eye Problem in the National Defense Situation. 1:3; Glaucoma. (Forum) 4:270

HALLER, JOSEPH A. Eye Protection in the Defense Industries. 1:11

HATHAWAY, WINIFRED. Ophthalmologist and the Partially Seeing Child. 3:196

Industrial Eye Efficiency in the War Program. CHARLES P. TOLMAN. 4:244

Industrial Eye Protection:

Eye Protection in the Defense Industries. JOSEPH A. HALLER. 1:11

Industrial Eye Efficiency in the War Program. CHARLES P. TOLMAN. 4:244

Industrial Worker—His Eyes. ALMA EBELING. (Forum) 3:201

Industrial Worker — His Eyes. ALMA EBELING. (Forum) 3:201

KNIGHTON, WILLIS S. Care of the Eyes in Middle Age. 3:190

Latin American Developments in the Prevention of Blindness. MOACYR E. ALVARO, M.D. 4:235

Latin American Prevention of Blindness:

First Inter-American Congress on the Prevention of Blindness. MATTHEW LUCKIESH. (Forum) 3:205

Latin American Developments in the Prevention of Blindness. MOACYR E. ALVARO, M.D. 4:235

Legibility in Comic Books. MATTHEW LUCKIESH and FRANK K. MOSS. 1:19

LUCKIESH, MATTHEW. First Inter-American Congress on the Prevention of Blindness. (Forum) 3:205

- LUCKIESH, MATTHEW, and MOSS, FRANK K. Legibility in Comic Books. 1:19
- Medical Social Work:**
Demonstrations of Medical Social Work in Eye Clinics. ELIZABETH G. GARDINER. 2:125
- MERRILL, ELEANOR BROWN. View of Prevention of Blindness in Relation to Public Health. 2:90; Year of Sight Conservation Work in Wartime. 4:259
- MOSS, FRANK K., and LUCKIESH, MATTHEW. Legibility in Comic Books. 1:19
- News of State Activities: 2:136; 4:275
- Note and Comment: 2:148; 3:208; 4:286
- Nursing:**
Specialization of Conservation of Vision in Institutional Nursing. CORA L. SHAW, R.N. 1:25
- Nutrition:**
Nutritional Defects and the Eyes. BENJAMIN RONES, M.D. 3:178
- Nutritional Defects and the Eyes. BENJAMIN RONES, M.D. 3:178
- Obituaries:** 4:295
- Ophthalmia Neonatorum. J. VINCENT FLACK, M.D. 2:120
- Ophthalmologist and the Partially Seeing Child. WINIFRED HATHAWAY. 3:196
- Parent's Responsibility in the Detection and Treatment of Crossed Eyes. ISADORE GIVNER, M.D. 4:266
- RONES, BENJAMIN, M.D. Nutritional Defects and the Eyes. 3:178
- RUTHERFORD, C. W., M.D. Sight Restoration in Indiana as Conducted by the State Department of Public Welfare. 2:103
- SCHOENBERG, MARK J., M.D. Ap-ropos of Glaucoma. 4:252
- SHAW, CORA L., R.N. Specializa-tion of Conservation of Vision in Institutional Nursing. 1:25
- Sight Restoration in Indiana as Conducted by the State Depart-ment of Public Welfare. C. W. RUTHERFORD, M.D. 2:103
- Sight-Saving Classes:**
Ophthalmologist and the Par-tially Seeing Child. WINIFRED HATHAWAY. 3:196
- SITCHEVSKA, OLGA, M.D. War and Eye Injuries. 2:83
- SMITH, VIRGINIA. Administrative Problems of Eye Clinics in Car-ing for Glaucoma Patients. 3:182
- Social Service:**
Children's Services in Sight Con-servation. LAURA E. DESTER. 2:110
- Sight Restoration in Indiana as Conducted by the State De-partment of Public Welfare. C. W. RUTHERFORD, M.D. 2:103
- View of Prevention of Blindness in Relation to Public Health. ELEANOR BROWN MERRILL. 2:90
- Specialization of Conservation of Vision in Institutional Nursing. CORA L. SHAW, R.N. 1:25
- State Activities, News of: 2:136; 4:275
- TOLMAN, CHARLES P. Industrial Eye Efficiency in the War Pro-gram. 4:244

TOWN, ARNO E., M.D. First Aid
for Eye Injuries. 3:163

Twenty Years in Saving Sight.
LEWIS H. CARRIS. 3:168

View of Prevention of Blindness
in Relation to Public Health.
ELEANOR BROWN MERRILL. 2:90

War and Eye Injuries. OLGA SIT-
CHEVSKA, M.D. 2:83

Wartime Eye Problems:

Eye Problem in the National De-
fense Situation. HARRY S.
GRADLE, M.D. 1:3

First Aid for Eye Injuries. ARNO
E. TOWN, M.D. 3:163

Industrial Eye Efficiency in the
War Program. CHARLES P.
TOLMAN. 4:244

War and Eye Injuries. OLGA
SITCHEVSKA, M.D. 2:83

Year of Sight Conservation Work
in Wartime. ELEANOR BROWN
MERRILL. 4:259

Year of Sight Conservation Work
in Wartime. ELEANOR BROWN
MERRILL. 4:259

